

CURVE DATA

No.	R	Δ	T	L
8	14090.00'	1°38'13"	201.29'	402.55'
9	14090.00'	1°38'13"	201.29'	402.55'
10	20200.00'	1°44'35"	307.27'	614.50'
11	20200.00'	1°57'22"	344.86'	689.66'
25	3524.00'	3°06'11"	95.45'	190.85'
26	1850.00'	2°28'18"	39.91'	79.81'
27	20000.00'	0°24'56"	72.55'	145.09'
28	150.00'	39°04'45"	53.23'	102.31'
29	250.00'	14°41'27"	32.23'	64.10'
30	1200.00'	51°41'11"	581.22'	1082.52'
33	1830.00'	2°31'07"	40.23'	80.44'
34	886.00'	50°32'27"	418.25'	781.54'
35	20000.00'	0°47'50"	139.13'	278.26'
36	3500.00'	2°17'43"	70.11'	140.21'
37	1806.00'	2°30'49"	39.62'	79.23'
38	862.00'	7°04'34"	53.30'	106.46'
39	450.00'	29°14'18"	117.38'	229.64'

No.	R	Δ	T	L
40	1173.11'	12°03'28"	123.90'	246.88'
41	850.00'	7°27'15"	55.37'	110.58'
42	4250.00'	9°01'42"	335.54'	669.68'
43	20000.00'	0°09'32"	27.75'	55.50'
44	3041.00'	3°08'59"	83.61'	167.17'
45	20308.30'	0°50'47"	150.03'	300.05'
50	1400.00'	8°49'33"	108.04'	215.66'
51	12563.00'	1°20'11"	146.51'	293.01'
62	3500.00'	7°21'39"	225.13'	449.64'
63	1000.00'	10°58'31"	96.07'	191.55'
64	1400.00'	5°59'43"	73.31'	146.49'
65	3251.00'	7°11'05"	204.10'	407.67'
66	19982.00'	0°51'38"	150.05'	300.09'
67	4274.00'	3°37'10"	135.04'	270.00'
68	1400.00'	4°12'59"	51.54'	103.02'
69	20000.00'	2°01'30"	353.46'	706.85'
70	6102.50'	1°16'47"	68.15'	136.30'

Dist

COUNTY

ROUTE

POST MILES TOTAL PROJECT

SHEET No.

TOTAL SHEETS

12,7

Oran,LA

22,73,405,605

Var

REGISTERED CIVIL ENGINEER

DATE

PLANS APPROVAL DATE

THE STATE OF CALIFORNIA OR ITS OFFICERS OR AGENTS SHALL NOT BE RESPONSIBLE FOR THE ACCURACY OR COMPLETENESS OF SCANNED COPIES OF THIS PLAN SHEET.

PARSONS
2201 DUPONT DRIVE
SUITE 200
IRVINE, CA 92612

ORANGE COUNTY
TRANSPORTATION AUTHORITY
550 SOUTH MAIN STREET
ORANGE, CA 92863

REGISTERED PROFESSIONAL ENGINEER

No.

Exp.

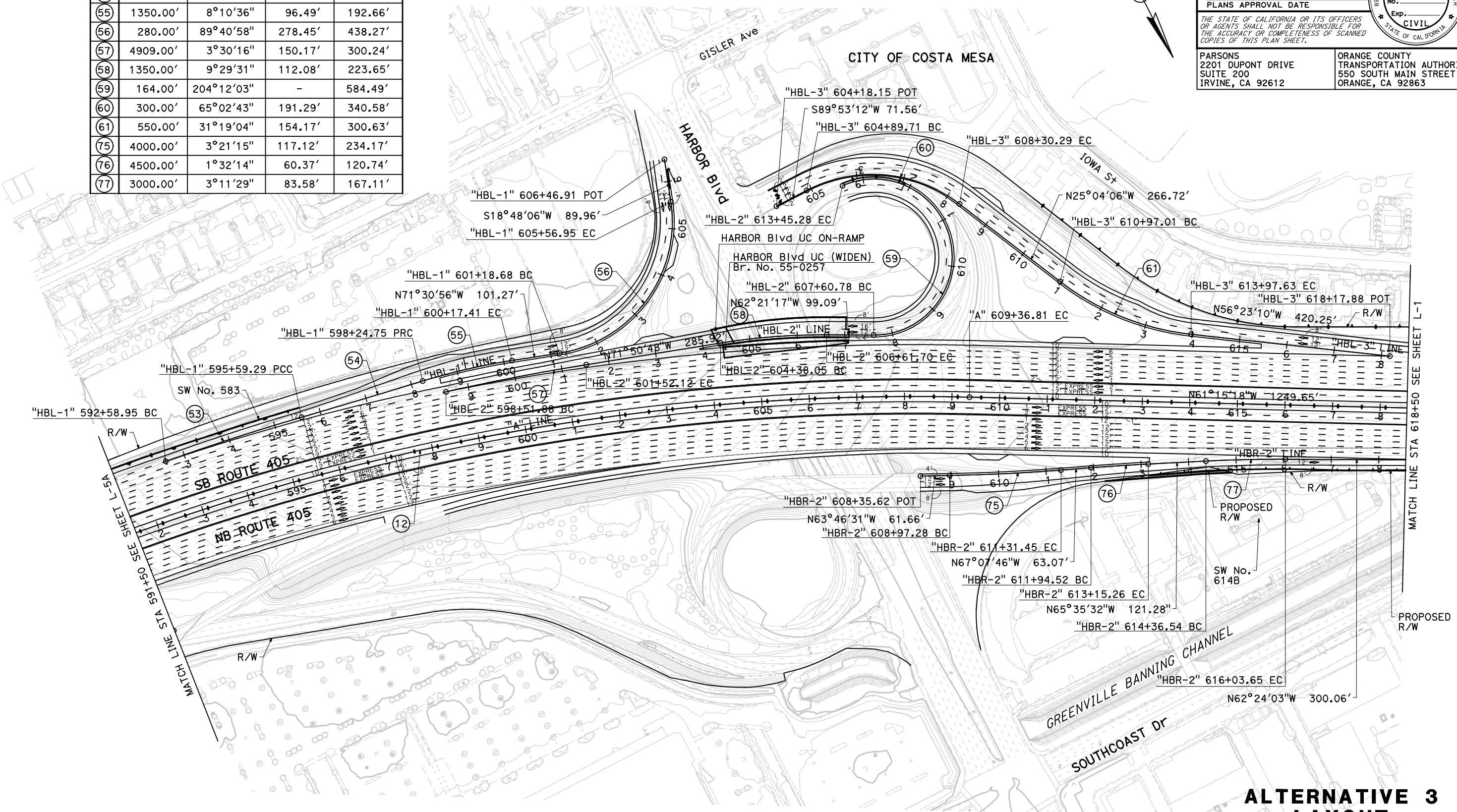
CIVIL

STATE OF CALIFORNIA



No.	R	Δ	T	L
(11)	20200.00'	1°57'22"	344.86'	689.66'
(12)	4800.00'	25°57'02"	1105.98'	2174.02'
(46)	7050.00'	1°51'56"	114.78'	229.53'
(47)	7100.00'	2°38'16"	163.46'	326.86'
(48)	7050.00'	1°19'03"	81.06'	162.12'
(49)	1400.00'	4°52'08"	59.52'	118.97'
(52)	5500.00'	3°11'18"	153.07'	306.06'
(71)	4497.50'	2°57'07"	115.88'	231.71'
(72)	3500.00'	14°25'38"	442.99'	881.30'
(73)	3476.00'	2°04'06"	62.75'	125.49'
(74)	350.00'	19°32'44"	60.28'	119.40'

CURVE DATA				
No.	R	Δ	T	L
(12)	4800.00'	25°57'02"	1105.98'	2174.02'
(53)	4921.00'	3°29'49"	150.22'	300.34'
(54)	20000.00'	0°45'38"	132.73'	265.47'
(55)	1350.00'	8°10'36"	96.49'	192.66'
(56)	280.00'	89°40'58"	278.45'	438.27'
(57)	4909.00'	3°30'16"	150.17'	300.24'
(58)	1350.00'	9°29'31"	112.08'	223.65'
(59)	164.00'	204°12'03"	-	584.49'
(60)	300.00'	65°02'43"	191.29'	340.58'
(61)	550.00'	31°19'04"	154.17'	300.63'
(75)	4000.00'	3°21'15"	117.12'	234.17'
(76)	4500.00'	1°32'14"	60.37'	120.74'
(77)	3000.00'	3°11'29"	83.58'	167.11'



Dist 12,7 COUNTY Ora,LA ROUTE 22,73, 405,605 POST MILES TOTAL PROJECT Var SHEET No. TOTAL SHEETS

REGISTERED CIVIL ENGINEER DATE

PLANS APPROVAL DATE

THE STATE OF CALIFORNIA OR ITS OFFICERS OR AGENTS SHALL NOT BE RESPONSIBLE FOR THE ACCURACY OR COMPLETENESS OF SCANNED COPIES OF THIS PLAN SHEET.

PARSONS 2201 DUPONT DRIVE SUITE 200 IRVINE, CA 92612

ORANGE COUNTY TRANSPORTATION AUTHORITY 550 SOUTH MAIN STREET ORANGE, CA 92863

REGISTERED PROFESSIONAL ENGINEER

No.

Exp.

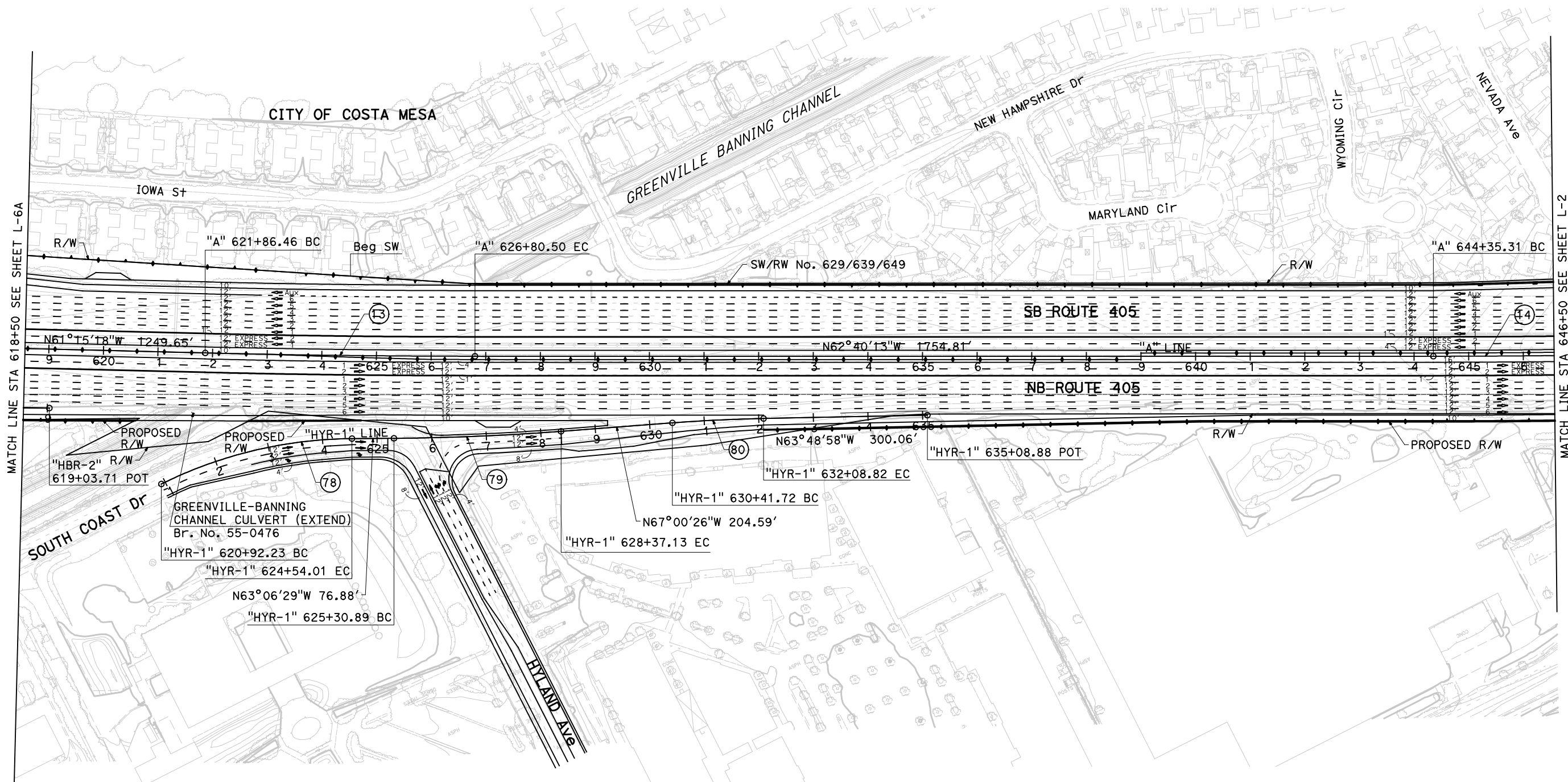
CIVIL

STATE OF CALIFORNIA

**ALTERNATIVE 3
LAYOUT
L-6A**
SCALE 1"=100'

LAST REVISION DATE PLOTTED => 3/8/2011 00-00-00 TIME PLOTTED => 5:59:59 PM

Dist#	COUNTY	ROUTE	POST MILES TOTAL PROJECT	SHEET No.	TOTAL SHEETS
12,7	Ora,LA	22,73, 405,605	Var		
<div> <div>REGISTERED CIVIL ENGINEER</div> <div>DATE</div> </div>					
<div> <div>PLANS APPROVAL DATE</div> <div> </div> </div>					
<p><i>THE STATE OF CALIFORNIA OR ITS OFFICERS OR AGENTS SHALL NOT BE RESPONSIBLE FOR THE ACCURACY OR COMPLETENESS OF SCANNED COPIES OF THIS PLAN SHEET.</i></p>					
PARSONS 2201 DUPONT DRIVE SUITE 200 IRVINE, CA 92612			ORANGE COUNTY TRANSPORTATION AUTHORITY 550 SOUTH MAIN STREET ORANGE, CA 92863		



ALTERNATIVE 3 LAYOUT L-1

Dist

COUNTY

ROUTE

POST MILES TOTAL PROJECT

SHEET No.

TOTAL SHEETS

12,7

Oran,LA

22,73,405,605

Var

REGISTERED CIVIL ENGINEER

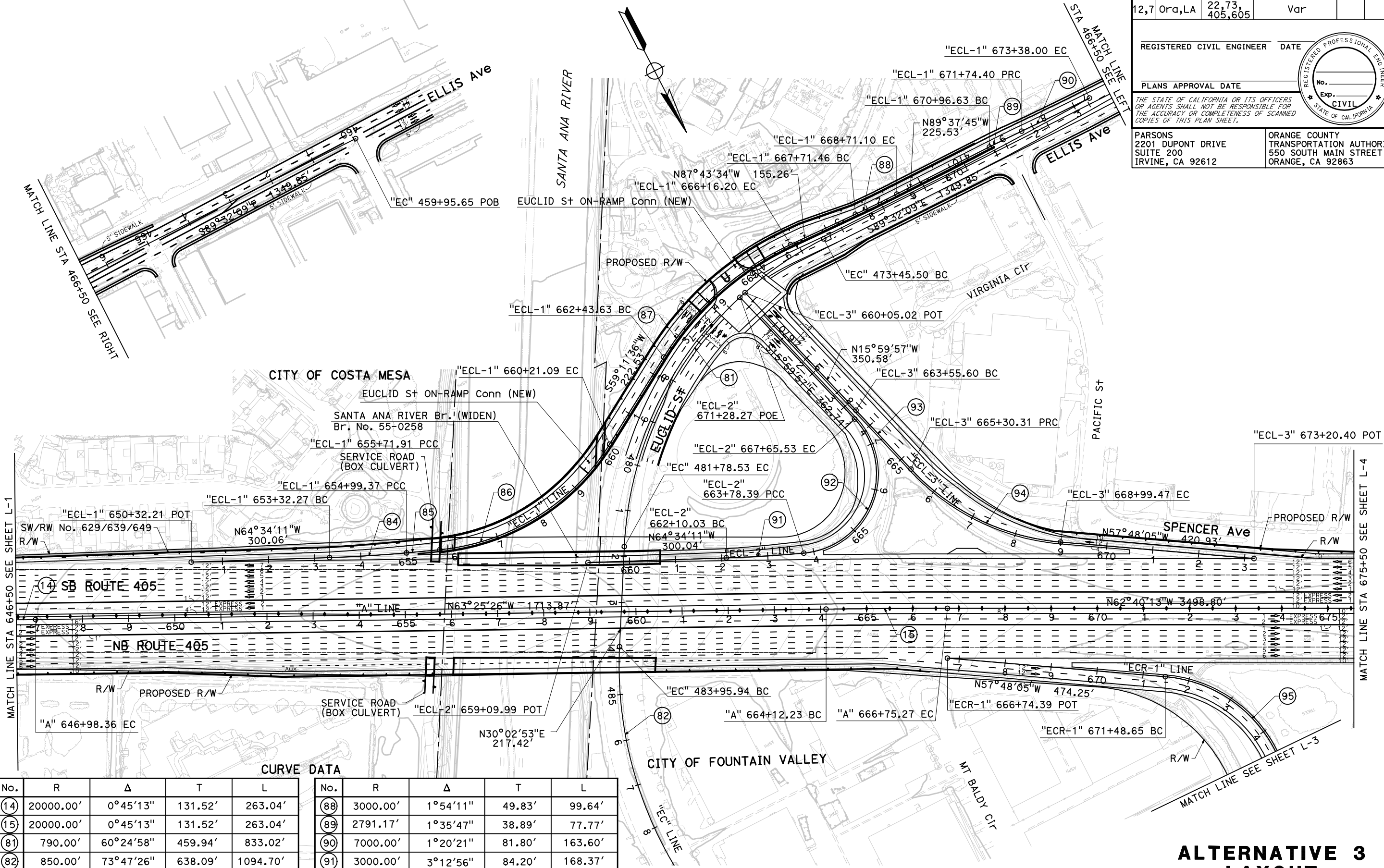
DATE

PLANS APPROVAL DATE

THE STATE OF CALIFORNIA OR ITS OFFICERS OR AGENTS SHALL NOT BE RESPONSIBLE FOR THE ACCURACY OR COMPLETENESS OF SCANNED COPIES OF THIS PLAN SHEET.

PARSONS
2201 DUPONT DRIVE
SUITE 200
IRVINE, CA 92612

ORANGE COUNTY
TRANSPORTATION AUTHORITY
550 SOUTH MAIN STREET
ORANGE, CA 92863



Dist	COUNTY	ROUTE	POST MILES TOTAL PROJECT	SHEET No.	TOTAL SHEETS
12,7	Ora, LA	22,73, 405,605	Var		

REGISTERED CIVIL ENGINEER	DATE
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PLANS APPROVAL DATE

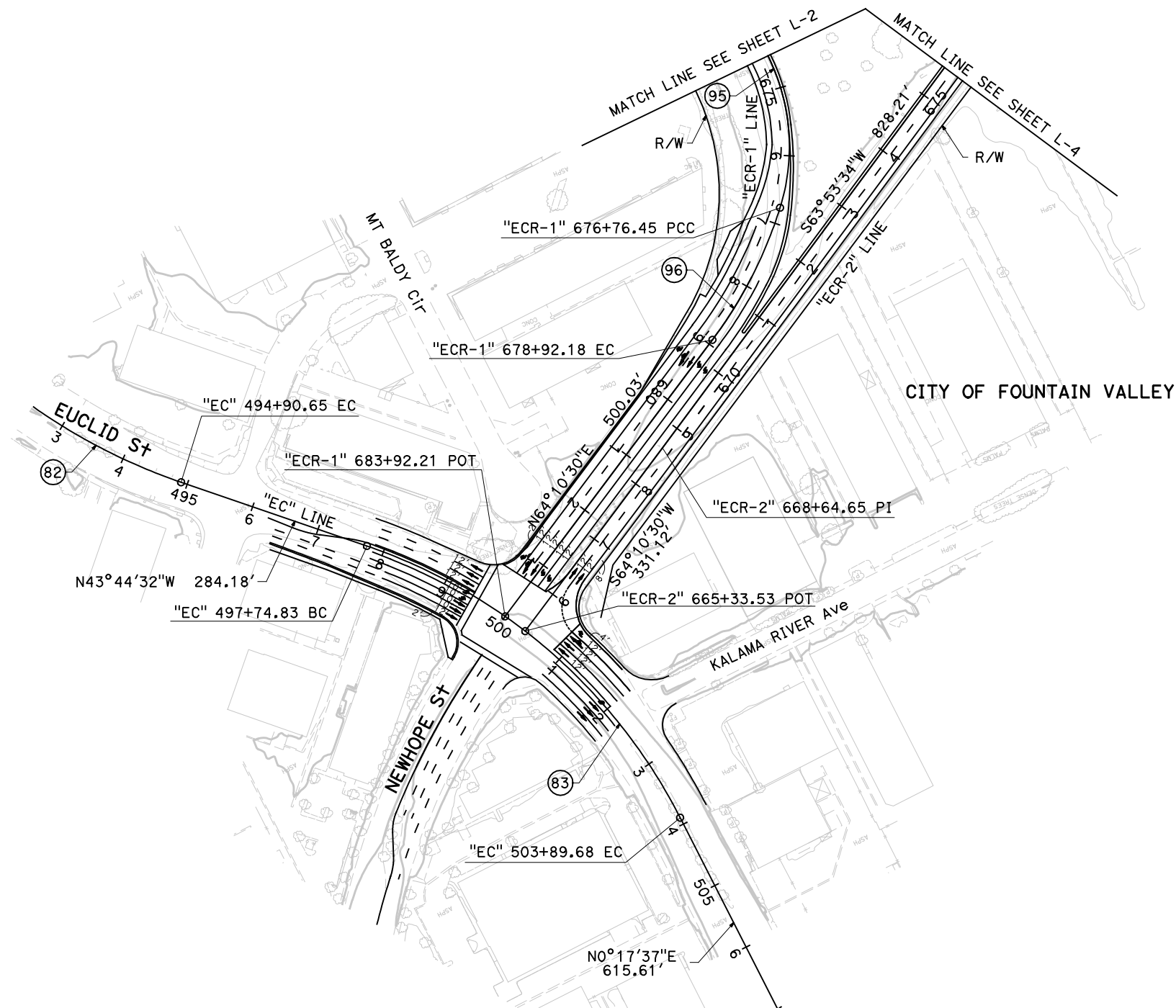
THE STATE OF CALIFORNIA OR ITS OFFICERS
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COPIES OF THIS PLAN SHEET.



PARSONS
2201 DUPONT DRIVE
SUITE 200
IRVINE, CA 92612

ORANGE COUNTY
TRANSPORTATION AUTHORITY
550 SOUTH MAIN STREET
ORANGE, CA 92863

No.	R	Δ	T	L
82	850.00'	73°47'26"	638.09'	1094.70'
83	800.00'	44°02'09"	323.51'	614.86'
95	295.00'	102°30'39"	367.63'	527.80'
96	635.00'	19°27'56"	108.92'	215.73'



ALTERNATIVE 3 LAYOUT L-3

SCALE 1"=100'

STATE OF CALIFORNIA - DEPARTMENT OF TRANSPORTATION	CONSULTANT FUNCTIONAL SUPERVISOR				
Swire				REVISOR BY	
				DATE REVISED	

BORDER LAST REVISED 7/2/2010

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RELATIVE BORDER SCALE
IS IN INCHES

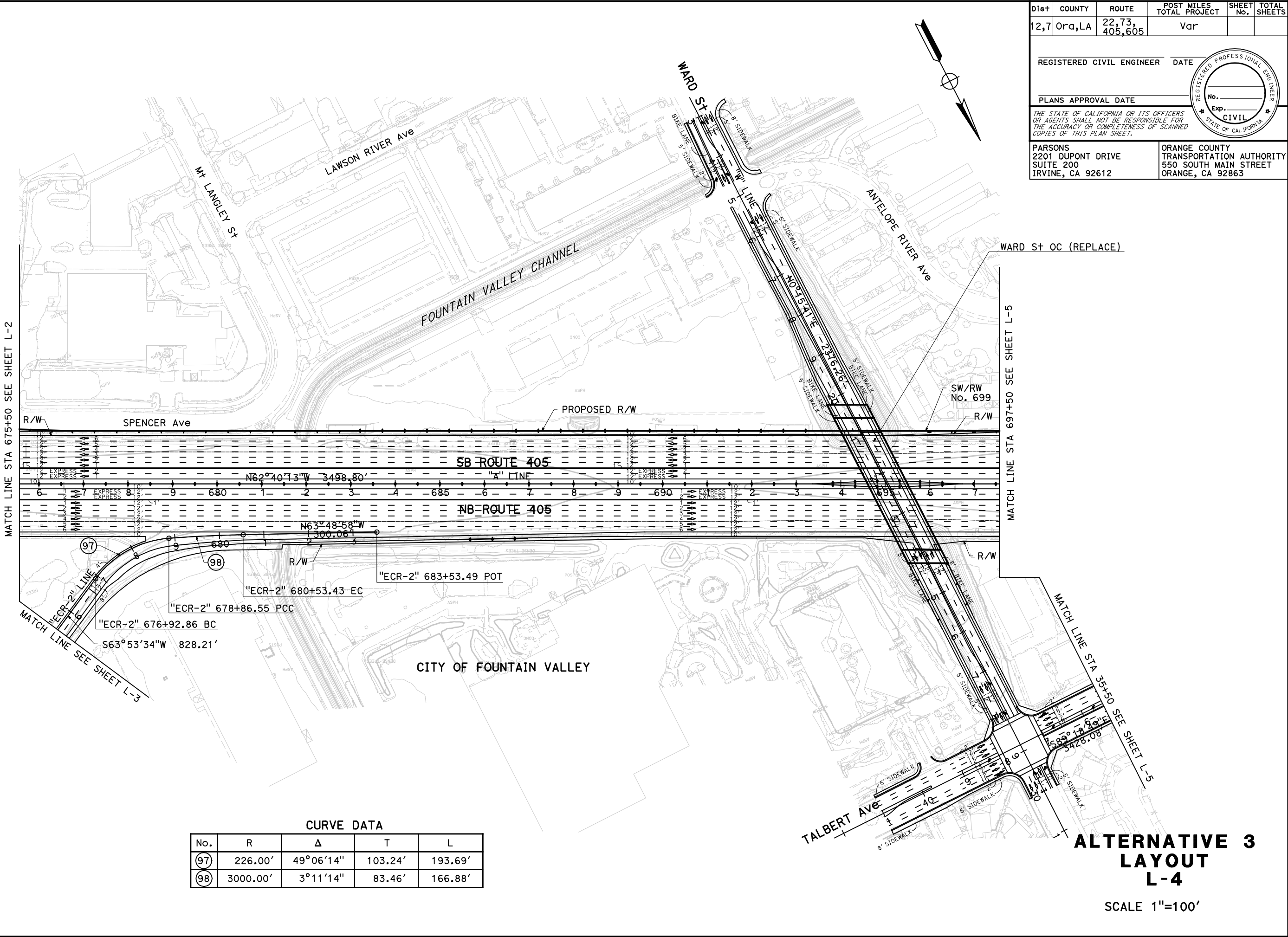


UNIT 2994

PROJECT NUMBER & PHASE

00000001 80

LAST REVISION	DATE PLOTTED => 3/8/2011
00-00-00	TIME PLOTTED => 6:00:25 PM



Dist	COUNTY	ROUTE	POST MILES TOTAL PROJECT	SHEET No.	TOTAL SHEETS
12,7	Oran,LA	22,73, 405,605	Var		

REGISTERED CIVIL ENGINEER

DATE

PLANS APPROVAL DATE

THE STATE OF CALIFORNIA OR ITS OFFICERS
OR AGENTS SHALL NOT BE RESPONSIBLE FOR
THE ACCURACY OR COMPLETENESS OF SCANNED
COPIES OF THIS PLAN SHEET.

PARSONS
2201 DUPONT DRIVE
SUITE 200
IRVINE, CA 92612

ORANGE COUNTY
TRANSPORTATION AUTHORITY
550 SOUTH MAIN STREET
ORANGE, CA 92863

REGISTERED PROFESSIONAL ENGINEER

No.

Exp.

CIVIL

STATE OF CALIFORNIA

Dist	COUNTY	ROUTE	POST MILES TOTAL PROJECT	SHEET No.	TOTAL SHEETS
12,7	Oran,LA	22,73, 405,605	Var		

REGISTERED CIVIL ENGINEER

DATE

PLANS APPROVAL DATE

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PARSONS
2201 DUPONT DRIVE
SUITE 200
IRVINE, CA 92612

ORANGE COUNTY
TRANSPORTATION AUTHORITY
550 SOUTH MAIN STREET
ORANGE, CA 92863

REGISTERED PROFESSIONAL ENGINEER

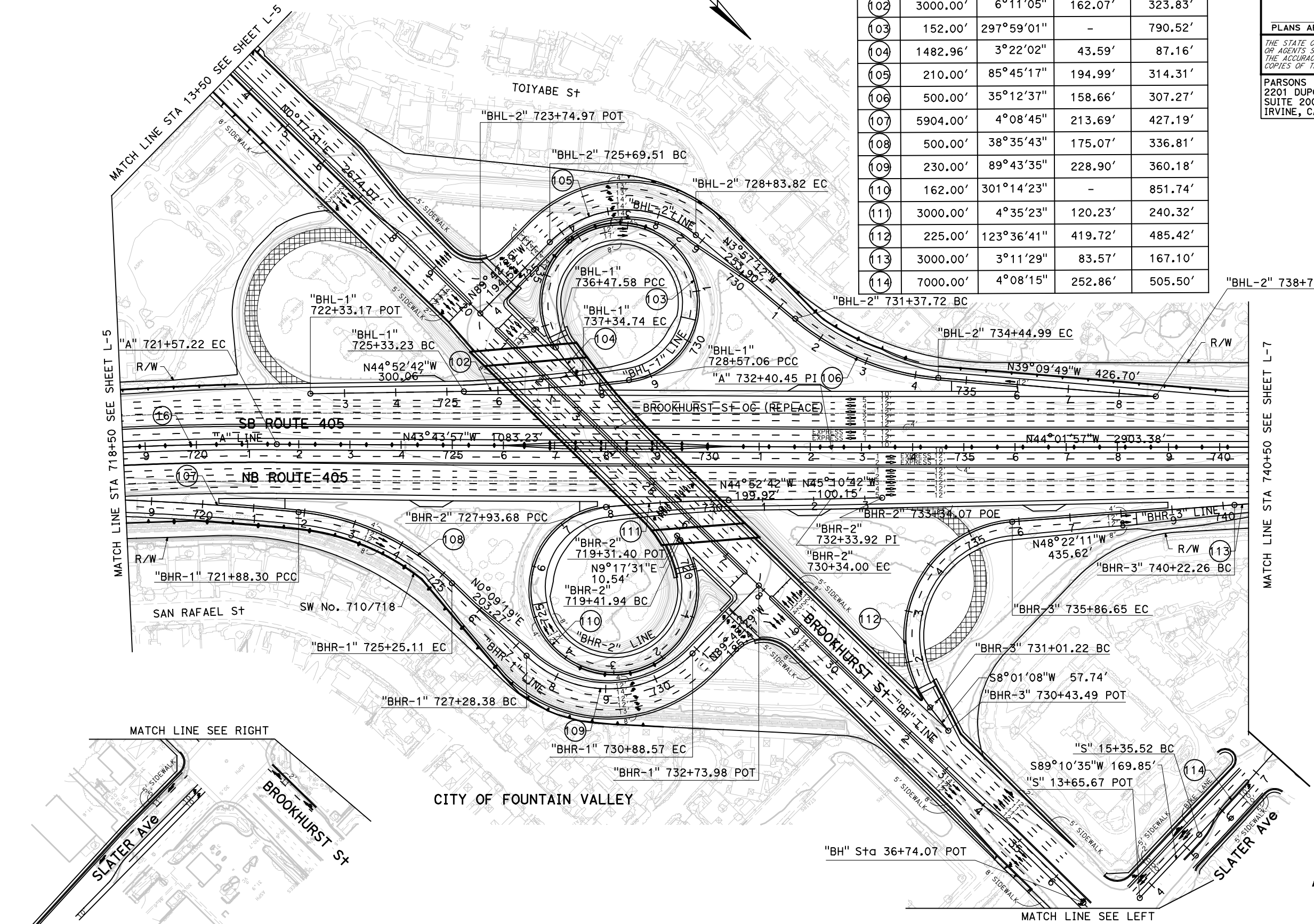
No.

Exp.


CIVIL

STATE OF CALIFORNIA

CURVE DATA				
No.	R	Δ	T	L
16	6000.00'	18°56'16"	1000.70'	1983.15'
102	3000.00'	6°11'05"	162.07'	323.83'
103	152.00'	297°59'01"	-	790.52'
104	1482.96'	3°22'02"	43.59'	87.16'
105	210.00'	85°45'17"	194.99'	314.31'
106	500.00'	35°12'37"	158.66'	307.27'
107	5904.00'	4°08'45"	213.69'	427.19'
108	500.00'	38°35'43"	175.07'	336.81'
109	230.00'	89°43'35"	228.90'	360.18'
110	162.00'	301°14'23"	-	851.74'
111	3000.00'	4°35'23"	120.23'	240.32'
112	225.00'	123°36'41"	419.72'	485.42'
113	3000.00'	3°11'29"	83.57'	167.10'
114	7000.00'	4°08'15"	252.86'	505.50'

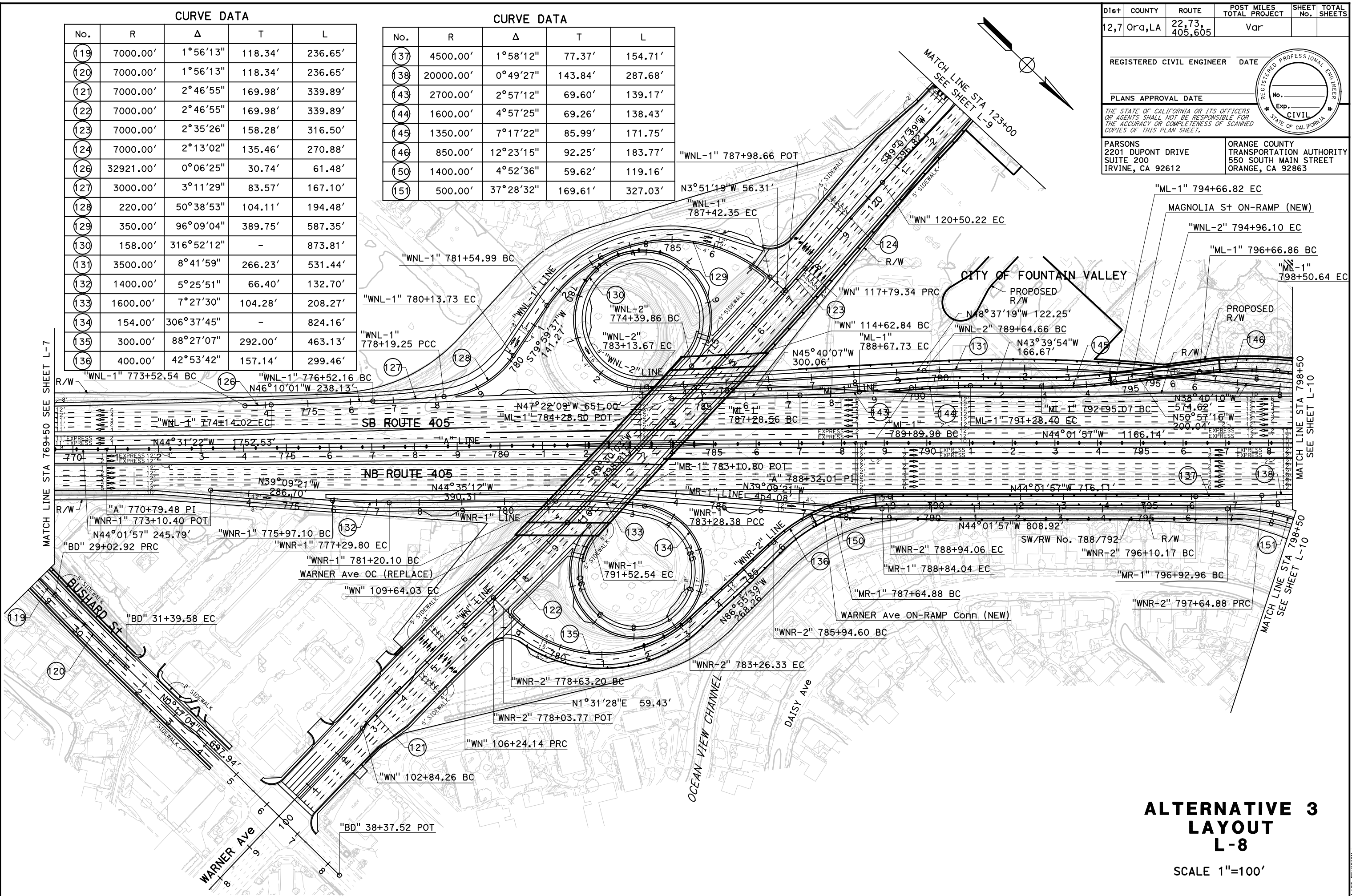


ALTERNATIVE 3
LAYOUT
L-6
SCALE 1"=100'

Dist#	COUNTY	ROUTE	POST MILES TOTAL PROJECT	SHEET No.	TOTAL SHEETS
12,7	Oran, LA	22, 73, 405, 605	Var		
<div style="display: flex; justify-content: space-between;"> <div>REGISTERED CIVIL ENGINEER</div> <div>DATE</div> </div> <div style="text-align: center;">  </div> <div style="display: flex; justify-content: space-between;"> <div>PLANS APPROVAL DATE</div> <div></div> </div>					
<p><i>THE STATE OF CALIFORNIA OR ITS OFFICERS OR AGENTS SHALL NOT BE RESPONSIBLE FOR THE ACCURACY OR COMPLETENESS OF SCANNED COPIES OF THIS PLAN SHEET.</i></p>					
PARSONS 2201 DUPONT DRIVE SUITE 200 IRVINE, CA 92612			ORANGE COUNTY TRANSPORTATION AUTHORITY 550 SOUTH MAIN STREET ORANGE, CA 92863		

No.	R	Δ	T	L
119	7000.00'	1°56'13"	118.34'	236.65'
120	7000.00'	1°56'13"	118.34'	236.65'
121	7000.00'	2°46'55"	169.98'	339.89'
122	7000.00'	2°46'55"	169.98'	339.89'
123	7000.00'	2°35'26"	158.28'	316.50'
124	7000.00'	2°13'02"	135.46'	270.88'
126	32921.00'	0°06'25"	30.74'	61.48'
127	3000.00'	3°11'29"	83.57'	167.10'
128	220.00'	50°38'53"	104.11'	194.48'
129	350.00'	96°09'04"	389.75'	587.35'
130	158.00'	316°52'12"	-	873.81'
131	3500.00'	8°41'59"	266.23'	531.44'
132	1400.00'	5°25'51"	66.40'	132.70'
133	1600.00'	7°27'30"	104.28'	208.27'
134	154.00'	306°37'45"	-	824.16'
135	300.00'	88°27'07"	292.00'	463.13'
136	400.00'	42°53'42"	157.14'	299.46'

No.	R	Δ	T	L
137	4500.00'	1°58'12"	77.37'	154.71'
138	20000.00'	0°49'27"	143.84'	287.68'
143	2700.00'	2°57'12"	69.60'	139.17'
144	1600.00'	4°57'25"	69.26'	138.43'
145	1350.00'	7°17'22"	85.99'	171.75'
146	850.00'	12°23'15"	92.25'	183.77'
150	1400.00'	4°52'36"	59.62'	119.16'
151	500.00'	37°28'32"	169.61'	327.03'



SCALE 1"=100'

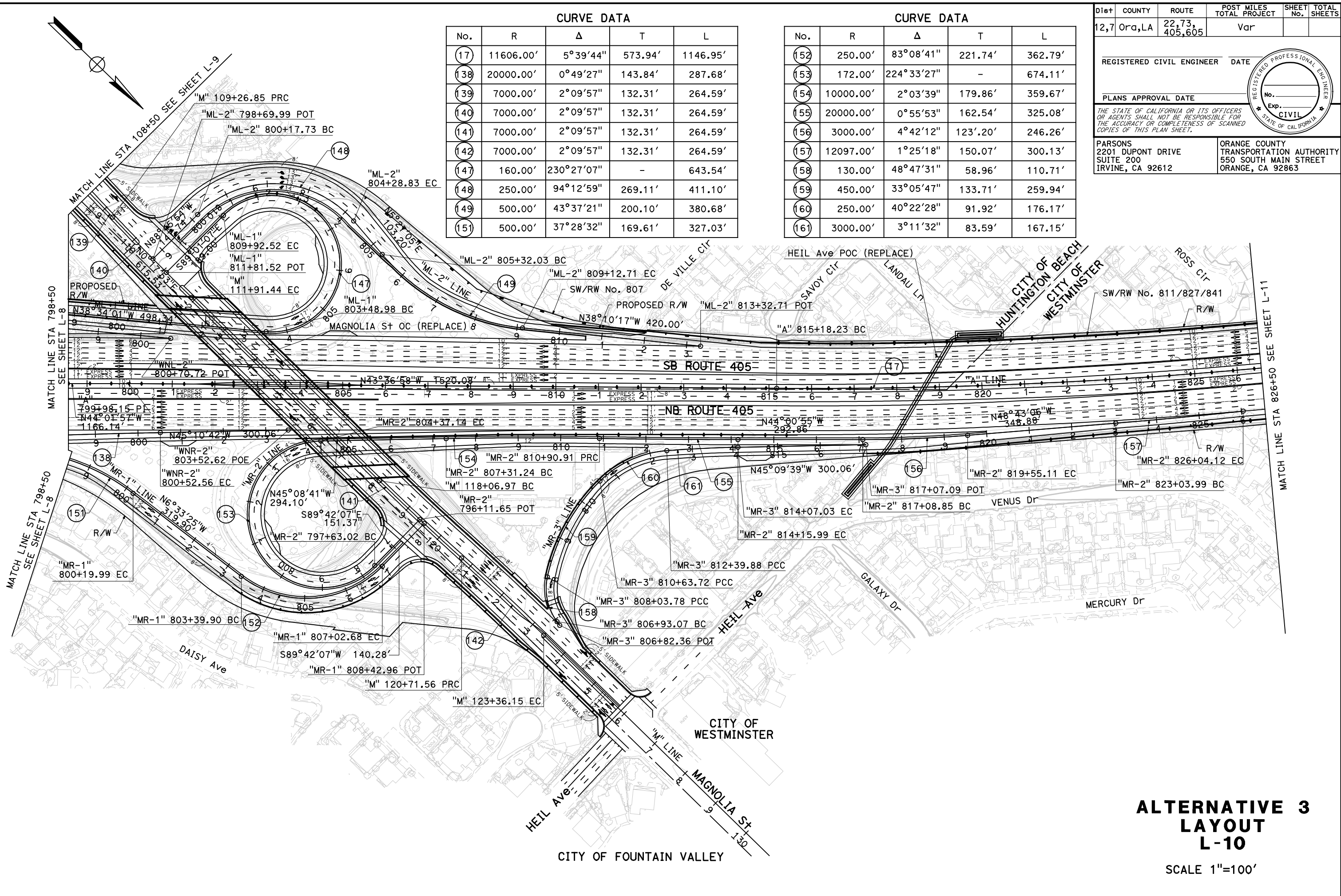
RELATIVE BORDER SCALE
IS IN INCHES



PROJECT NUMBER & PHASE

00000001 80

STATE OF CALIFORNIA - DEPARTMENT OF TRANSPORTATION	CONSULTANT FUNCTIONAL SUPERVISOR	CALCULATED-DESIGNED BY	REVISED BY		
		CHECKED BY	DATE REVISED		



No.	R	Δ	T	L
17	11606.00'	5°39'44"	573.94'	1146.95'
138	20000.00'	0°49'27"	143.84'	287.68'
139	7000.00'	2°09'57"	132.31'	264.59'
140	7000.00'	2°09'57"	132.31'	264.59'
141	7000.00'	2°09'57"	132.31'	264.59'
142	7000.00'	2°09'57"	132.31'	264.59'
147	160.00'	230°27'07"	-	643.54'
148	250.00'	94°12'59"	269.11'	411.10'
149	500.00'	43°37'21"	200.10'	380.68'
151	500.00'	37°28'32"	169.61'	327.03'

No.	R	Δ	T	L
152	250.00'	83°08'41"	221.74'	362.79'
153	172.00'	224°33'27"	-	674.11'
154	10000.00'	2°03'39"	179.86'	359.67'
155	20000.00'	0°55'53"	162.54'	325.08'
156	3000.00'	4°42'12"	123'.20'	246.26'
157	12097.00'	1°25'18"	150.07'	300.13'
158	130.00'	48°47'31"	58.96'	110.71'
159	450.00'	33°05'47"	133.71'	259.94'
160	250.00'	40°22'28"	91.92'	176.17'
161	3000.00'	3°11'32"	83.59'	167.15'

Dist#	COUNTY	ROUTE	POST MILES TOTAL PROJECT	SHEET No.	TOTAL SHEETS
12,7	Ora,LA	22,73, 405,605	Var		

REGISTERED CIVIL ENGINEER	DATE
PLANS APPROVAL DATE	

*THE STATE OF CALIFORNIA OR ITS OFFICERS
OR AGENTS SHALL NOT BE RESPONSIBLE FOR
THE ACCURACY OR COMPLETENESS OF SCANNED
COPIES OF THIS PLAN SHEET.*

PARSONS 2201 DUPONT DRIVE SUITE 200 IRVINE, CA 92612	ORANGE COUNTY TRANSPORTATION AUTHORITY 550 SOUTH MAIN STREET ORANGE, CA 92863
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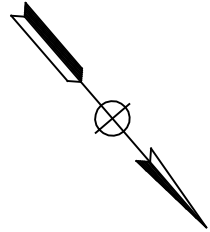
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Subaru

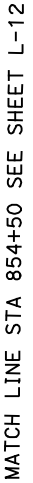
DATE REVISED

CHECKED BY

No.	R	Δ	T	L
17	11606.00'	5°39'44"	573.94'	1146.95'
162	7000.00'	2°39'09"	162.06'	324.07'
163	7000.00'	2°39'09"	162.06'	324.07'
164	7000.00'	2°39'09"	162.06'	324.07'
165	7000.00'	2°39'09"	162.06'	324.07'
166	7000.00'	2°16'16"	138.75'	277.47'

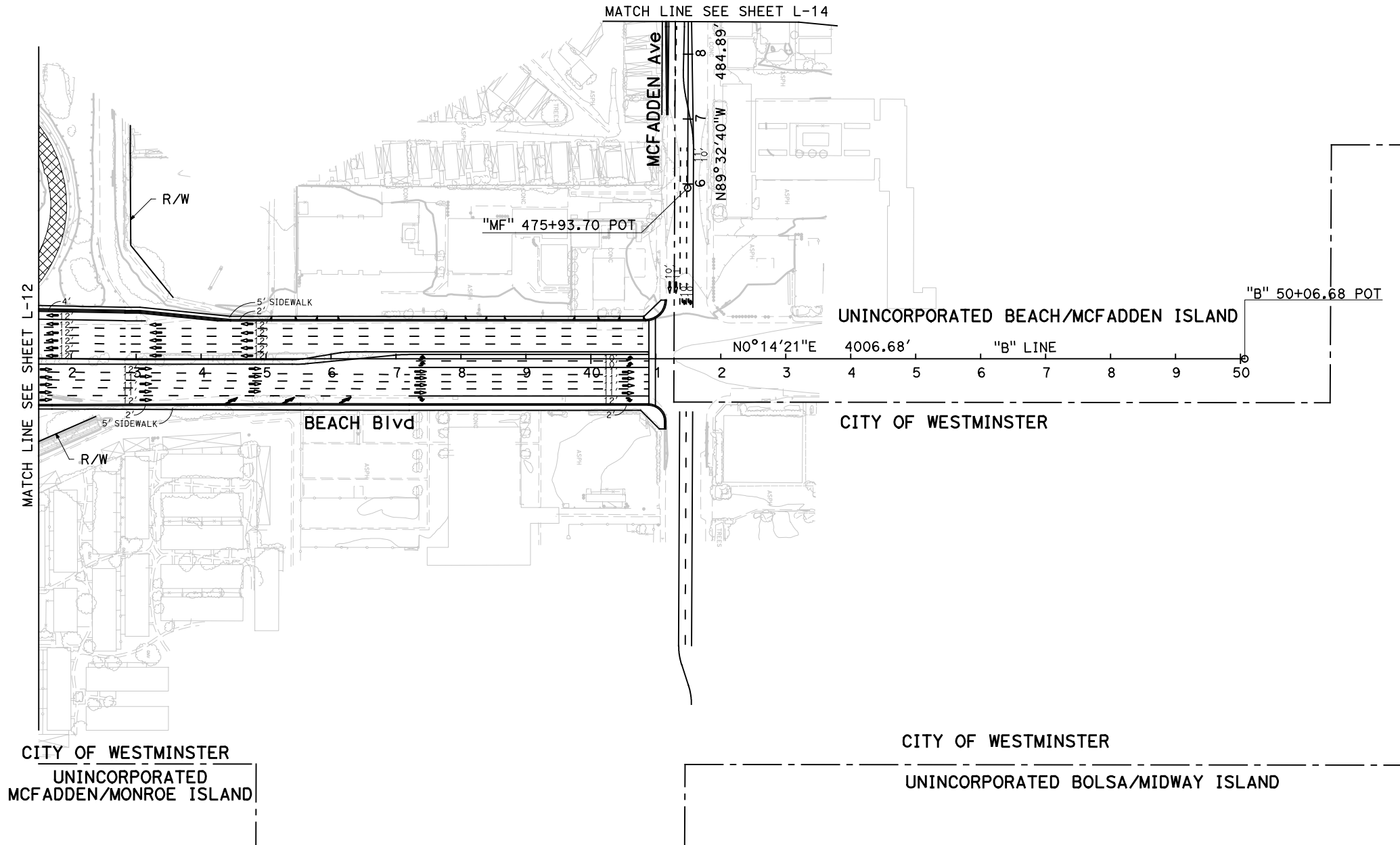


Dist	COUNTY	ROUTE	POST MILES TOTAL PROJECT	SHEET No.	TOTAL SHEETS
12,7	Ora, LA	22,73, 405,605	Var		
REGISTERED CIVIL ENGINEER _____ DATE _____ PLANS APPROVAL DATE _____					
<p><i>THE STATE OF CALIFORNIA OR ITS OFFICERS OR AGENTS SHALL NOT BE RESPONSIBLE FOR THE ACCURACY OR COMPLETENESS OF SCANNED COPIES OF THIS PLAN SHEET.</i></p>					
PARSONS 2201 DUPONT DRIVE SUITE 200 IRVINE, CA 92612			ORANGE COUNTY TRANSPORTATION AUTHORITY 550 SOUTH MAIN STREET ORANGE, CA 92663		



SCALE 1"=100'

STATE OF CALIFORNIA - DEPARTMENT OF TRANSPORTATION	CONSULTANT FUNCTIONAL SUPERVISOR	CALCULATED-DESIGNED BY	REVISOR	DATE
Alttrans		CHECKED BY		



Dist	COUNTY	ROUTE	POST MILES TOTAL PROJECT	SHEET No.	TOTAL SHEETS
12,7	Ora,LA	22,73, 405,605	Var		
REGISTERED CIVIL ENGINEER			DATE		
PLANS APPROVAL DATE					
THE STATE OF CALIFORNIA OR ITS OFFICERS OR AGENTS SHALL NOT BE RESPONSIBLE FOR THE ACCURACY OR COMPLETENESS OF SCANNED COPIES OF THIS PLAN SHEET.					
PARSONS 2201 DUPONT DRIVE SUITE 200 IRVINE, CA 92612			ORANGE COUNTY TRANSPORTATION AUTHORITY 550 SOUTH MAIN STREET ORANGE, CA 92863		



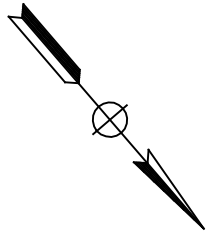
ALTERNATIVE 3
LAYOUT
L-13
SCALE 1"=100'

X

Et. Culture®

CALCULATED- DESIGNED BY	CHECKED BY
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No.	R	Δ	T	L
(18)	12000.00'	5°07'29"	537.02'	1073.33'
(175)	3900.00'	4°31'00"	153.80'	307.44'
(181)	1000.00'	21°16'08"	187.77'	371.21'
(182)	3000.00'	3°11'29"	83.57'	167.10'
(183)	1000.00'	20°34'03"	181.44'	358.97'
(184)	1016.50'	43°01'24"	400.65'	763.29'
(185)	700.00'	10°40'53"	65.44'	130.50'
(186)	700.00'	33°08'04"	208.24'	404.81'

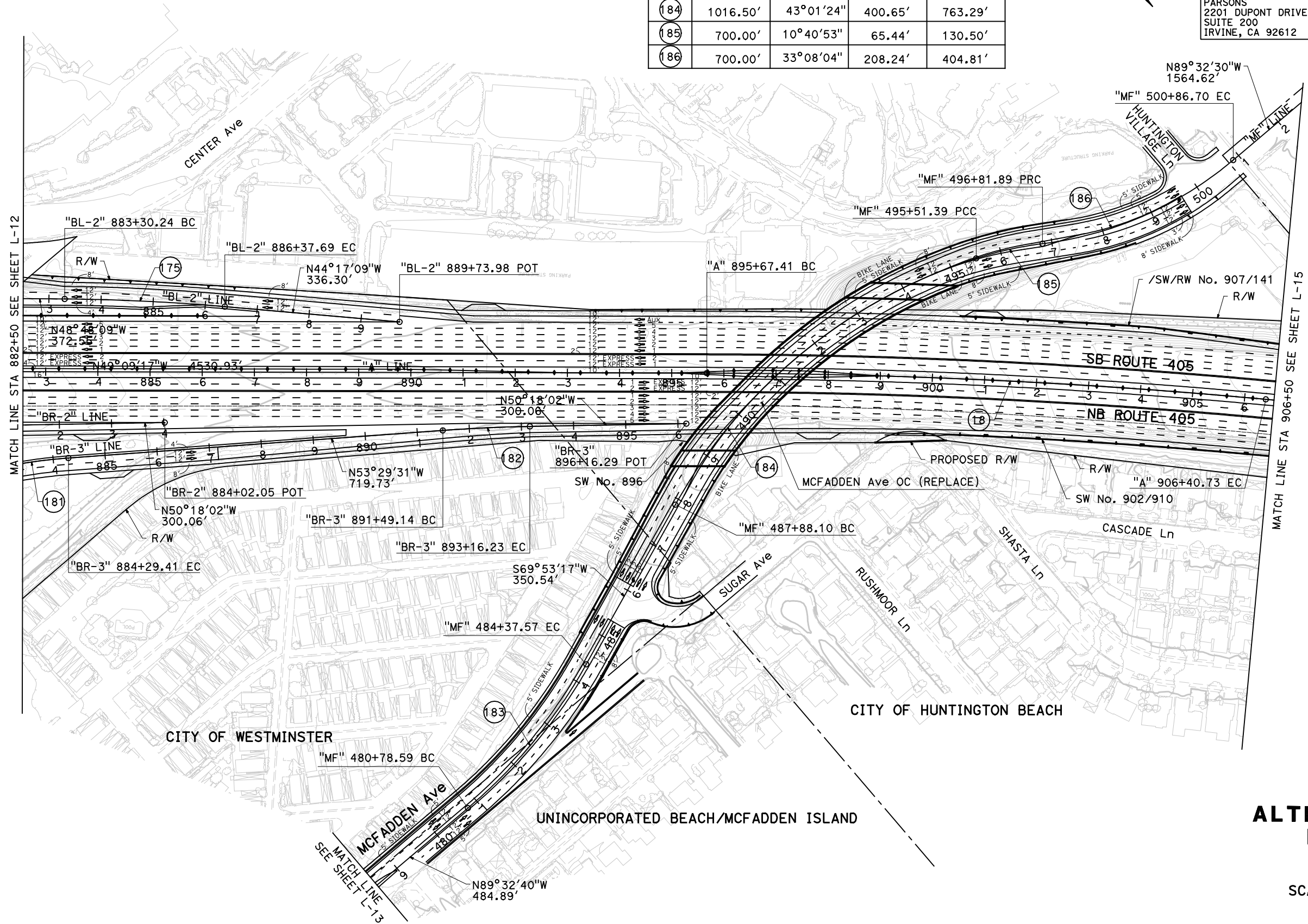


Dist#	COUNTY	ROUTE	POST MILES TOTAL PROJECT	SHEET No.	TOTAL SHEETS
12,7	Ora, LA	22,73, 405,605	Var		

REGISTERED CIVIL ENGINEER	DATE
PLANS APPROVAL DATE	

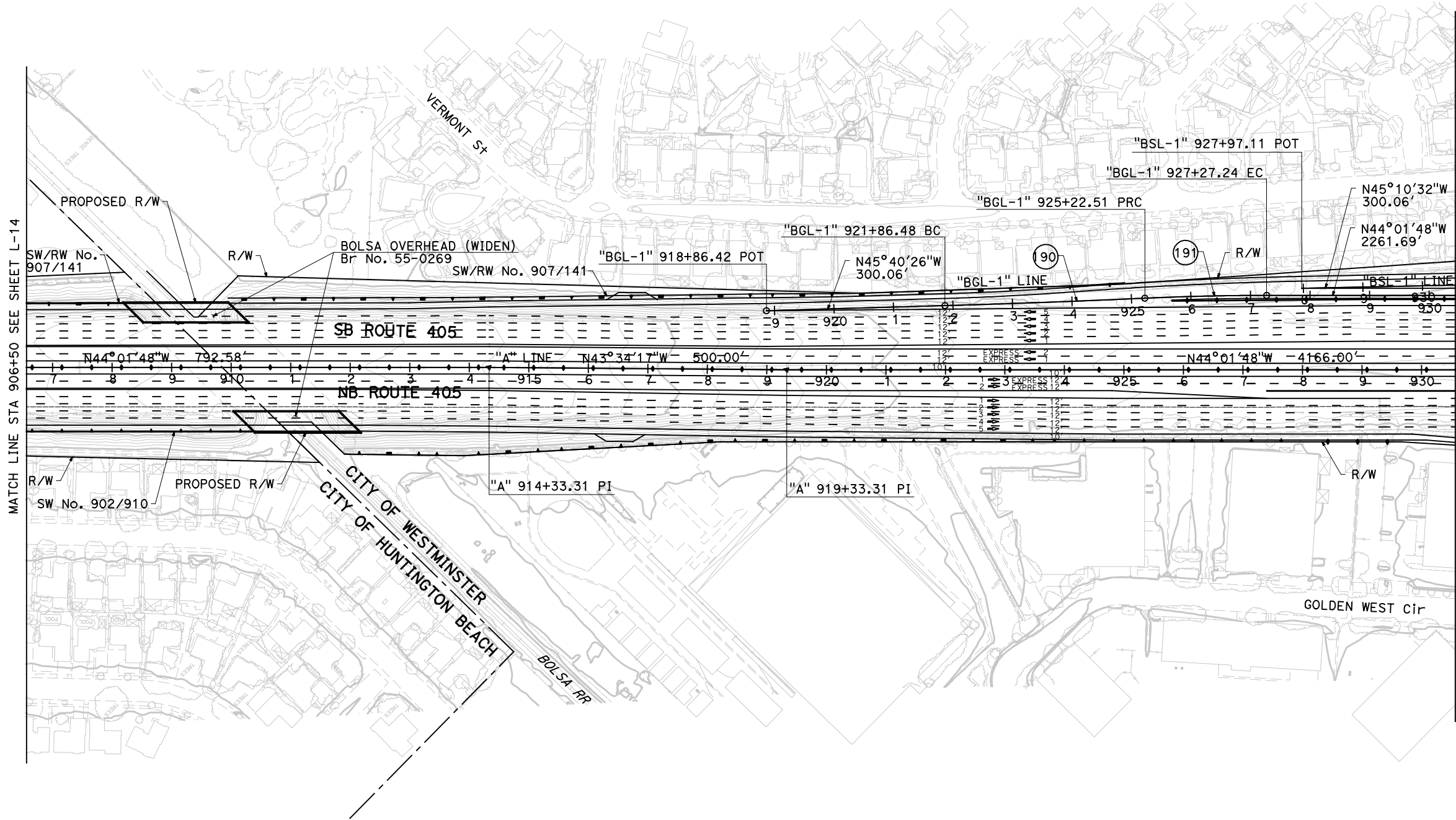
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PARSONS 2201 DUPONT DRIVE SUITE 200 IRVINE, CA 92612	ORANGE COUNTY TRANSPORTATION AUTHORITY 550 SOUTH MAIN STREET ORANGE, CA 92863
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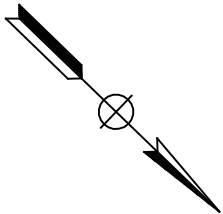


ALTERNATIVE 3 LAYOUT L-14

SCALE 1"=100'



CURVE DATA				
No.	R	Δ	T	L
190	20000.00'	0°57'46"	168.02'	336.03'
191	4500.00'	2°36'24"	102.38'	204.73'



Dist	COUNTY	ROUTE	POST MILES TOTAL PROJECT	SHEET No.	TOTAL SHEETS
12.7	Oran, LA	22,73, 405,605	Var		

REGISTERED CIVIL ENGINEER

DATE

PLANS APPROVAL DATE

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PARSONS

2201 DUPONT DRIVE

SUITE 200

IRVINE, CA 92612

ORANGE COUNTY

TRANSPORTATION AUTHORITY

550 SOUTH MAIN STREET

ORANGE, CA 92863

MATCH LINE STA 906+50 SEE SHEET L-14

MATCH LINE STA 930+50 SEE SHEET L-16

ALTERNATIVE 3
LAYOUT
L-15
SCALE 1"=100'

BORDER LAST REVISED 7/2/2010

USERNAME => p0035942
DGN FILE => ALT 3 Layout Sheets.dgn

RELATIVE BORDER SCALE
IS IN INCHES

0 1 2 3

UNIT 2994

PROJECT NUMBER & PHASE

0000000180

LAST REVISION DATE PLOTTED => 3/8/2011
00-00-00 TIME PLOTTED => 6:02:04 PM

Dist

COUNTY

ROUTE

POST MILES TOTAL PROJECT

SHEET No.

TOTAL SHEETS

12,7

Oran,LA

22,73,405,605

Var

REGISTERED CIVIL ENGINEER

DATE

PLANS APPROVAL DATE

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PARSONS
2201 DUPONT DRIVE
SUITE 200
IRVINE, CA 92612

ORANGE COUNTY
TRANSPORTATION AUTHORITY
550 SOUTH MAIN STREET
ORANGE, CA 92863

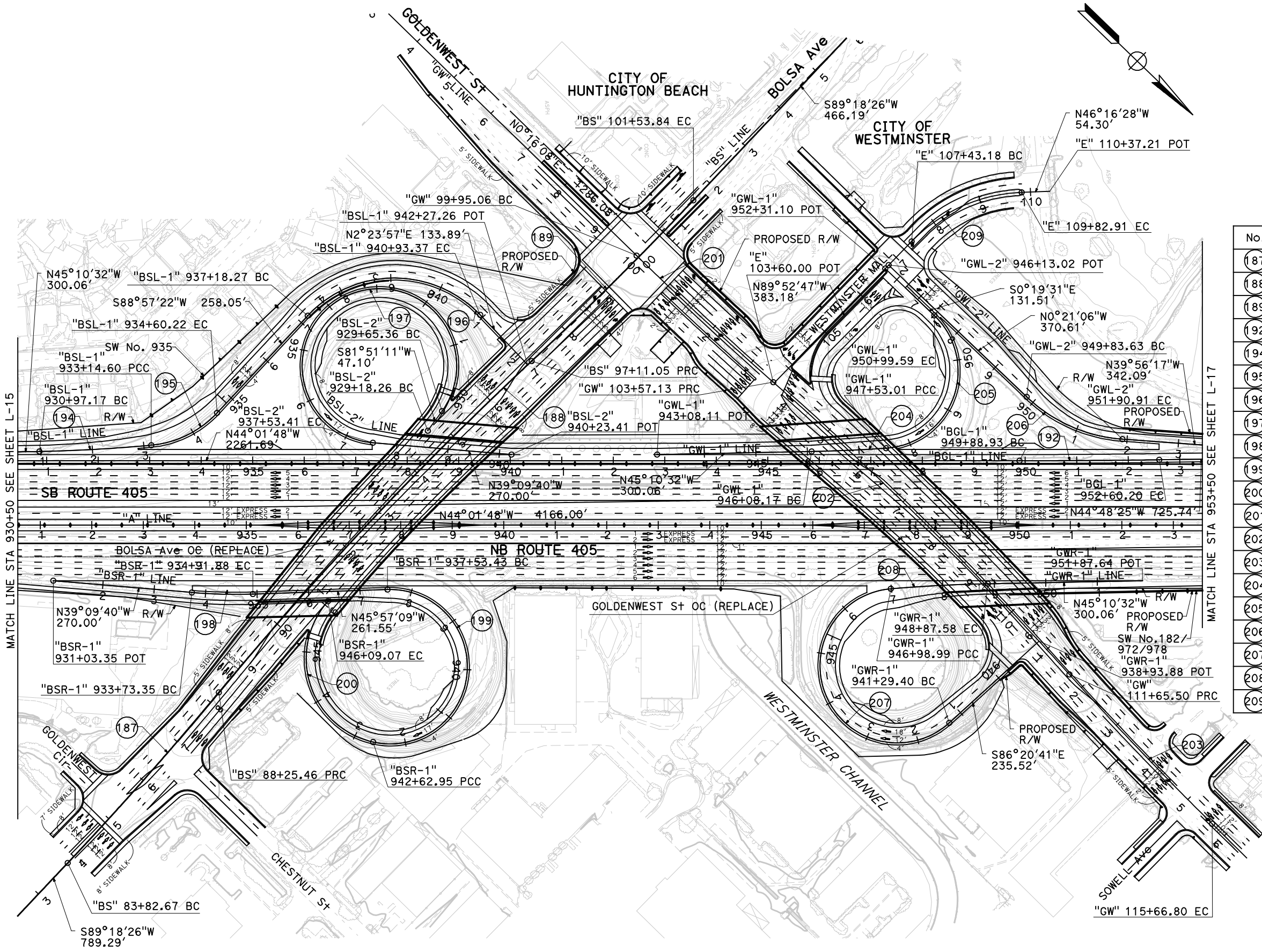
REGISTERED PROFESSIONAL ENGINEER

No.

Exp.

CIVIL

STATE OF CALIFORNIA



CURVE DATA				
No.	R	Δ	T	L
187	7000.00'	3°37'28"	221.47'	442.79'
188	7000.00'	7°14'55"	443.38'	885.59'
189	7000.00'	3°37'28"	221.47'	442.79'
192	20000.00'	0°46'38"	135.64'	271.27'
194	3000.00'	4°09'10"	108.76'	217.43'
195	200.00'	41°42'56"	76.20'	145.61'
196	230.00'	93°26'34"	244.25'	375.10'
197	150.00'	301°00'51"	-	788.05'
198	1000.00'	6°47'29"	59.34'	118.53'
199	150.00'	194°37'24"	-	509.52'
200	166.53'	119°05'05"	283.19'	346.12'
201	7000.00'	2°57'49"	181.07'	362.07'
202	7000.00'	6°37'00"	404.63'	808.37'
203	7000.00'	3°17'05"	200.71'	401.30'
204	3000.00'	2°45'59"	72.43'	144.84'
205	150.00'	132°23'00"	339.96'	346.58'
206	300.00'	39°35'11"	107.97'	207.27'
207	150.00'	217°34'02"	-	569.59'
208	3000.00'	3°36'06"	94.33'	188.59'
209	315.00'	43°36'18"	126.01'	239.73'

ALTERNATIVE 3
LAYOUT
L-16
SCALE 1"=100'

LAST REVISION DATE PLOTTED => 3/8/2011
00-00-00 TIME PLOTTED => 6:02:11 PM

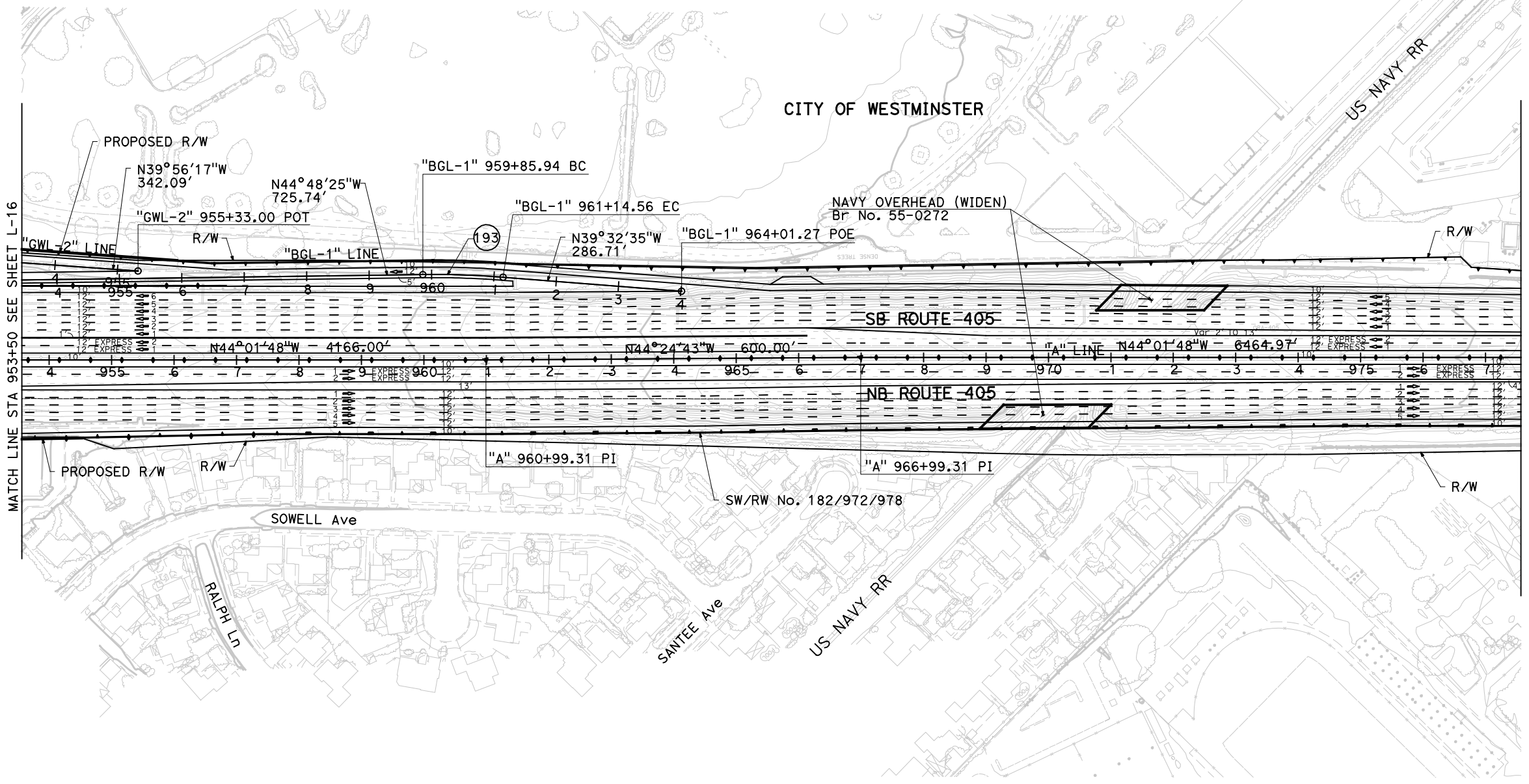
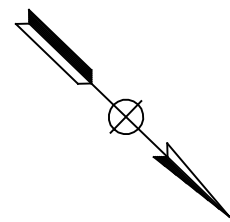
Dist#	COUNTY	ROUTE	POST MILES TOTAL PROJECT	SHEET No.	TOTAL SHEETS
12,7	Ora,LA	22,73, 405,605	Var		

REGISTERED CIVIL ENGINEER	DATE
PLANS APPROVAL DATE	

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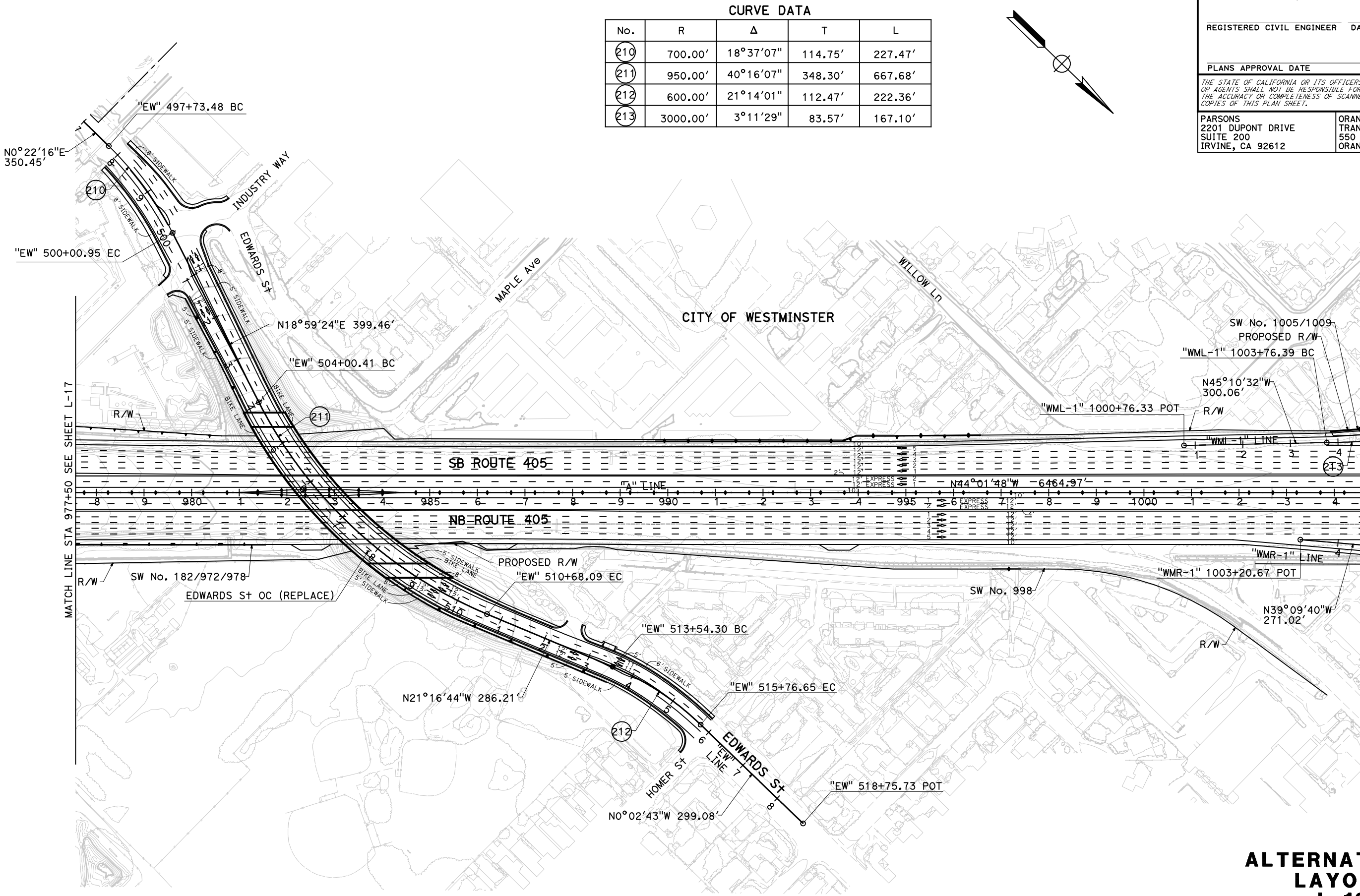
PARSONS 2201 DUPONT DRIVE SUITE 200 IRVINE, CA 92612	ORANGE COUNTY TRANSPORTATION AUTHORITY 550 SOUTH MAIN STREET ORANGE, CA 92863
---	--

CURVE DATA				
No.	R	Δ	T	L
193	1400.00'	5°15'50"	64.36'	128.62'

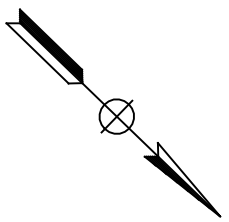


ALTERNATIVE 3 LAYOUT L-17

SCALE 1"=100'



CURVE DATA				
No.	R	Δ	T	L
210	700.00'	18°37'07"	114.75'	227.47'
211	950.00'	40°16'07"	348.30'	667.68'
212	600.00'	21°14'01"	112.47'	222.36'
213	3000.00'	3°11'29"	83.57'	167.10'



Dist

12,7

COUNTY

Oran,LA

ROUTE

22,73,405,605

POST MILES TOTAL PROJECT

Var

SHEET No.

TOTAL SHEETS

REGISTERED CIVIL ENGINEER

DATE

PLANS APPROVAL DATE

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PARSONS

2201 DUPONT DRIVE

SUITE 200

IRVINE, CA 92612

ORANGE COUNTY TRANSPORTATION AUTHORITY

550 SOUTH MAIN STREET

ORANGE, CA 92863

REGISTERED PROFESSIONAL ENGINEER

No.

Exp.

CIVIL

STATE OF CALIFORNIA

ALTERNATIVE 3
LAYOUT
L-18
SCALE 1"=100'

BORDER LAST REVISED 7/2/2010

USERNAME => p0035942
DGN FILE => ALT 3 Layout Sheets.dgn

RELATIVE BORDER SCALE IS IN INCHES

0 1 2 3

UNIT 2994

PROJECT NUMBER & PHASE

0000000180

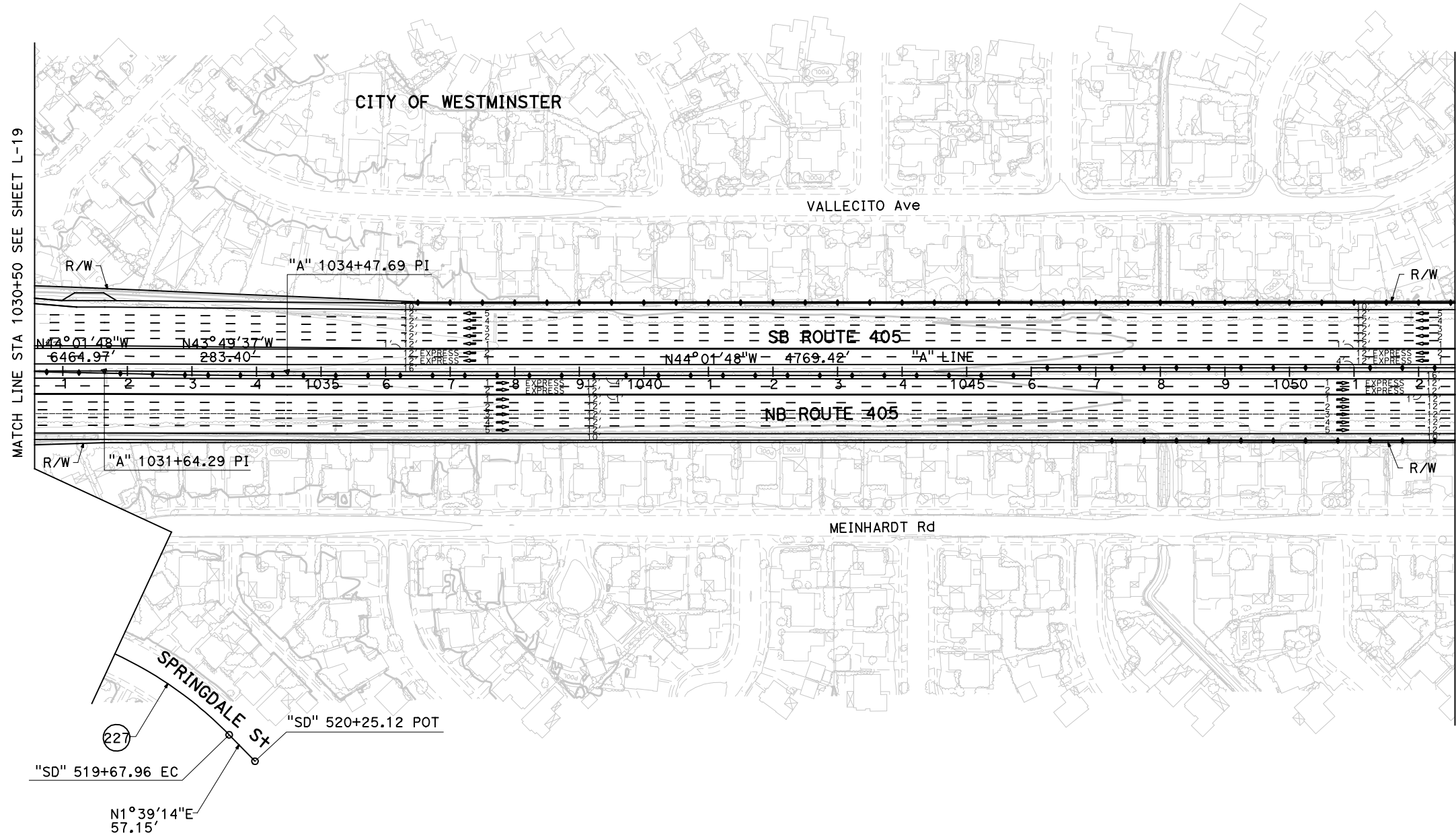
LAST REVISION DATE PLOTTED => 3/8/2011
00-00-00 TIME PLOTTED => 6:02:29 PM

Dist#	COUNTY	ROUTE	POST MILES TOTAL PROJECT	SHEET No.	TOTAL SHEETS
12,7	Oran, LA	22,73, 405,605	Var		

REGISTERED CIVIL ENGINEER	DATE
PLANS APPROVAL DATE	

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PARSONS 2201 DUPONT DRIVE SUITE 200 IRVINE, CA 92612	ORANGE COUNTY TRANSPORTATION AUTHORITY 550 SOUTH MAIN STREET ORANGE, CA 92863
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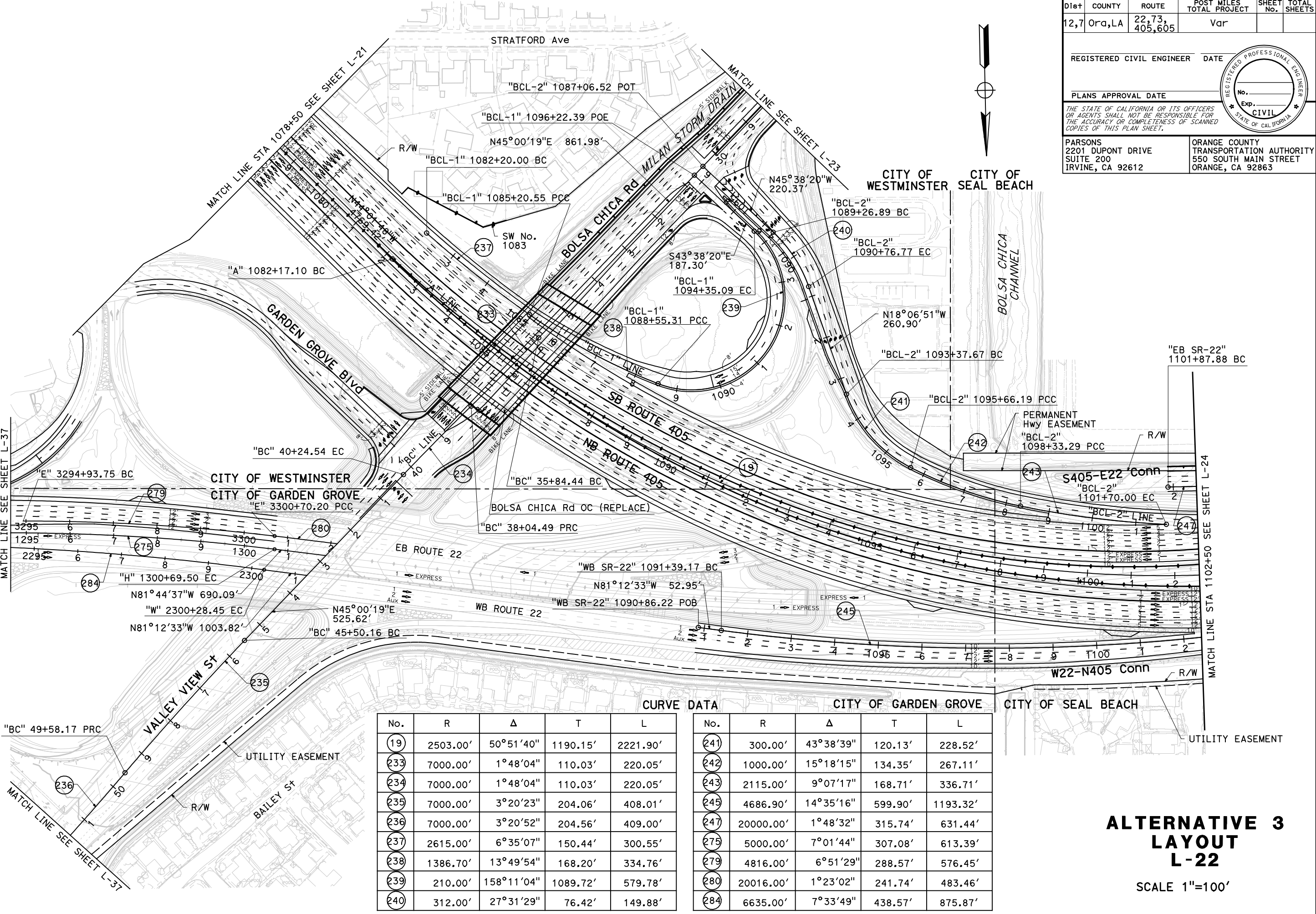


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0000000180

SCALE 1"=100'

DATE PLOTTED => 3/8/2011	DATE PLOTTED => 3/8/2011
TIME PLOTTED => 6:02:56 PM	TIME PLOTTED => 6:02:56 PM
LAST REVISION	LAST REVISION
00-00-00	00-00-00



Dist

12,7

County

Ora,LA

Route

22,73,405,605

Post Miles Total Project

Var

SHEET No.

TOTAL SHEETS

REGISTERED CIVIL ENGINEER

DATE

PLANS APPROVAL DATE

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PARSONS

2201 DUPONT DRIVE

SUITE 200

IRVINE, CA 92612

ORANGE COUNTY TRANSPORTATION AUTHORITY

550 SOUTH MAIN STREET

ORANGE, CA 92863

REGISTERED PROFESSIONAL ENGINEER

No.

Exp.

CIVIL

STATE OF CALIFORNIA

CURVE DATA					CITY OF GARDEN GROVE				
No.	R	Δ	T	L	No.	R	Δ	T	L
19	2503.00'	50°51'40"	1190.15'	2221.90'	241	300.00'	43°38'39"	120.13'	228.52'
233	7000.00'	1°48'04"	110.03'	220.05'	242	1000.00'	15°18'15"	134.35'	267.11'
234	7000.00'	1°48'04"	110.03'	220.05'	243	2115.00'	9°07'17"	168.71'	336.71'
235	7000.00'	3°20'23"	204.06'	408.01'	245	4686.90'	14°35'16"	599.90'	1193.32'
236	7000.00'	3°20'52"	204.56'	409.00'	247	20000.00'	1°48'32"	315.74'	631.44'
237	2615.00'	6°35'07"	150.44'	300.55'	279	5000.00'	7°01'44"	307.08'	613.39'
238	1386.70'	13°49'54"	168.20'	334.76'	279	4816.00'	6°51'29"	288.57'	576.45'
239	210.00'	158°11'04"	1089.72'	579.78'	280	20016.00'	1°23'02"	241.74'	483.46'
240	312.00'	27°31'29"	76.42'	149.88'	284	6635.00'	7°33'49"	438.57'	875.87'

BORDER LAST REVISED 7/2/2010

USERNAME => p0035942
DGN FILE => ALT 3 Layout Sheets.dgn

RELATIVE BORDER SCALE IS IN INCHES

0 1 2 3


UNIT 2994

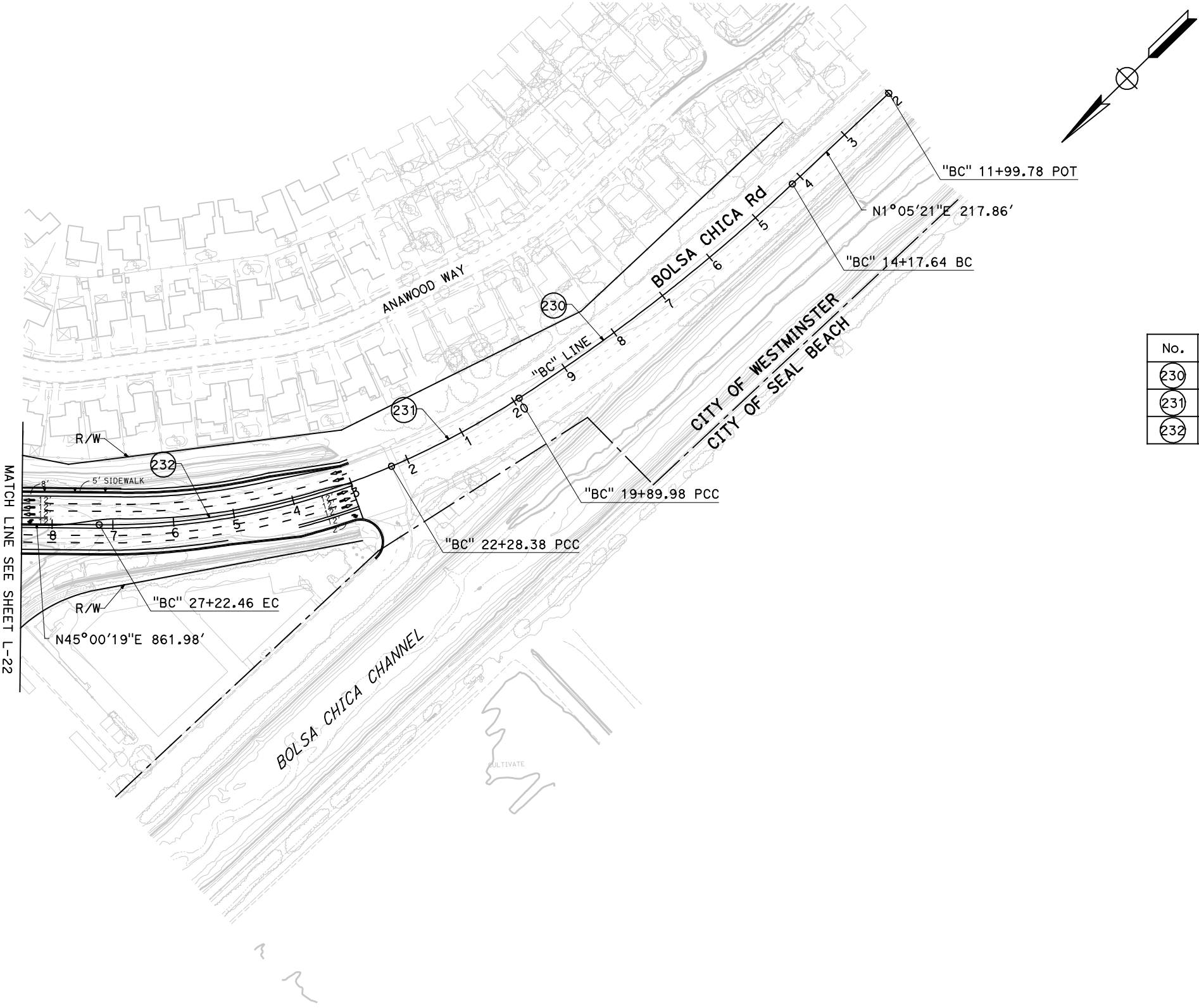
PROJECT NUMBER & PHASE

0000000180

ALTERNATIVE 3
LAYOUT
L-22
SCALE 1"=100'

LAST REVISION DATE PLOTTED => 3/8/2011
00-00-00 TIME PLOTTED => 6:03:05 PM

STATE OF CALIFORNIA - DEPARTMENT OF TRANSPORTATION	CONSULTANT FUNCTIONAL SUPERVISOR		CALCULATED - DESIGNED BY	REVISED BY		
			CHECKED BY	DATE	REVISED	



Dist	COUNTY	ROUTE	POST MILES TOTAL PROJECT	SHEET No.	TOTAL SHEETS
12,7	Oran, LA	22,73, 405,605	Var		

REGISTERED CIVIL ENGINEER

DATE

PLANS APPROVAL DATE

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PARSONS

2201 DUPONT DRIVE

SUITE 200

IRVINE, CA 92612

ORANGE COUNTY

TRANSPORTATION AUTHORITY

550 SOUTH MAIN STREET

ORANGE, CA 92863

CURVE DATA				
No.	R	Δ	T	L
230	3178.45'	10°19'02"	286.94'	572.34'
231	1412.63'	9°40'09"	119.48'	238.40'
232	1183.00'	23°55'47"	250.70'	494.08'

ALTERNATIVE 3
LAYOUT
L-23
SCALE 1"=100'



X

Et. Catrans®

REVISED BY
DATE REVISED

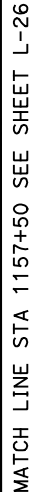
CURVE DATA




SCALE 1"=100'

X

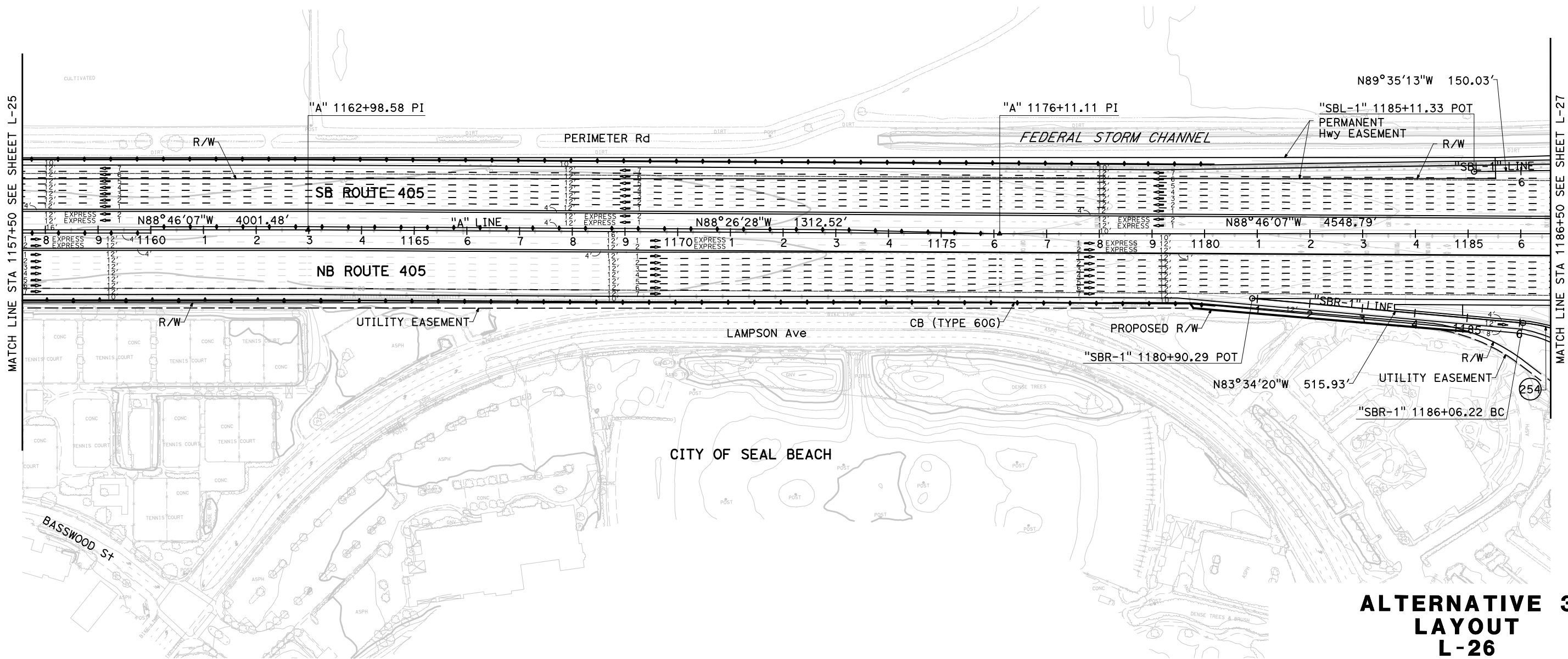
Subaru



SCALE 1"=100'

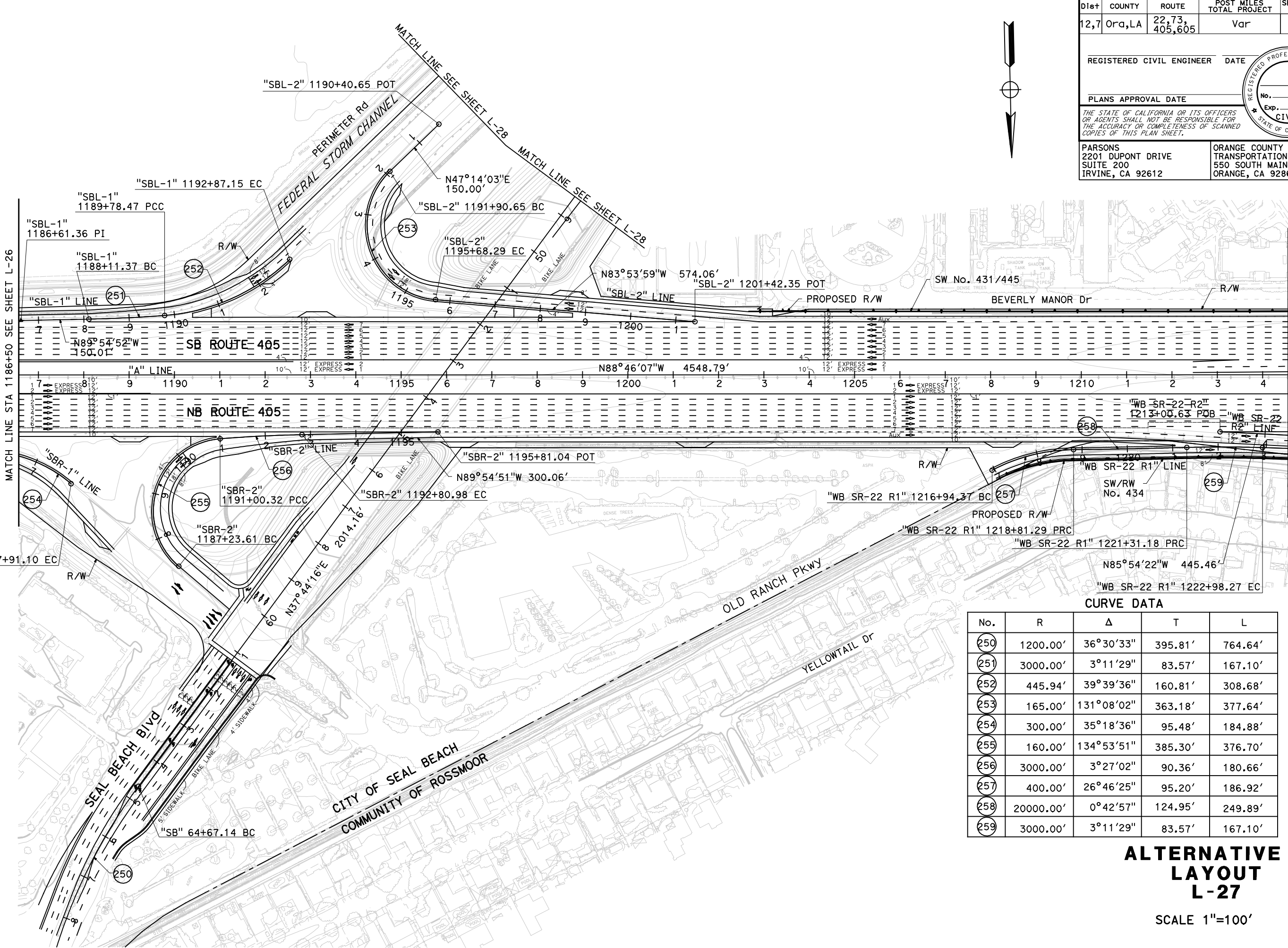
Dist#	COUNTY	ROUTE	POST MILES TOTAL PROJECT	SHEET No.	TOTAL SHEETS
12,7	Oran, LA	22,73, 405,605	Var		
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<p><i>THE STATE OF CALIFORNIA OR ITS OFFICERS OR AGENTS SHALL NOT BE RESPONSIBLE FOR THE ACCURACY OR COMPLETENESS OF SCANNED COPIES OF THIS PLAN SHEET.</i></p>					
PARSONS 2201 DUPONT DRIVE SUITE 200 IRVINE, CA 92612			ORANGE COUNTY TRANSPORTATION AUTHORITY 550 SOUTH MAIN STREET ORANGE, CA 92863		

CURVE DATA				
No.	R	Δ	T	L
254	300.00'	35°18'36"	95.48'	184.88'



ALTERNATIVE 3 LAYOUT L-26

SCALE 1"=100'



Dist 12,7

County Ora,LA

Route 22,73, 405,605

Post Miles Total Project Var

SHEET No.

TOTAL SHEETS

REGISTERED CIVIL ENGINEER

DATE

PLANS APPROVAL DATE

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PARSONS
2201 DUPONT DRIVE
SUITE 200
IRVINE, CA 92612

ORANGE COUNTY
TRANSPORTATION AUTHORITY
550 SOUTH MAIN STREET
ORANGE, CA 92863

REGISTERED PROFESSIONAL ENGINEER

No.


Exp.

CIVIL

STATE OF CALIFORNIA

CURVE DATA				
No.	R	Δ	T	L
250	1200.00'	36°30'33"	395.81'	764.64'
251	3000.00'	3°11'29"	83.57'	167.10'
252	445.94'	39°39'36"	160.81'	308.68'
253	165.00'	131°08'02"	363.18'	377.64'
254	300.00'	35°18'36"	95.48'	184.88'
255	160.00'	134°53'51"	385.30'	376.70'
256	3000.00'	3°27'02"	90.36'	180.66'
257	400.00'	26°46'25"	95.20'	186.92'
258	20000.00'	0°42'57"	124.95'	249.89'
259	3000.00'	3°11'29"	83.57'	167.10'

ALTERNATIVE 3
LAYOUT
L-27
SCALE 1"=100'

STATE OF CALIFORNIA - DEPARTMENT OF TRANSPORTATION 	CONSULTANT FUNCTIONAL SUPERVISOR	CALCULATED-DESIGNED BY	REVISOR	DATE

x

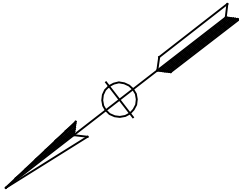
x

x

x

x

CURVE DATA				
No.	R	Δ	T	L
249	1186.00'	36°18'58"	388.98'	751.73'



Dist	COUNTY	ROUTE	POST MILES TOTAL PROJECT	SHEET No.	TOTAL SHEETS
12,7	Oran,LA	22,73, 405,605	Var		
REGISTERED CIVIL ENGINEER			DATE		
PLANS APPROVAL DATE					
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PARSONS 2201 DUPONT DRIVE SUITE 200 IRVINE, CA 92612			ORANGE COUNTY TRANSPORTATION AUTHORITY 550 SOUTH MAIN STREET ORANGE, CA 92863		

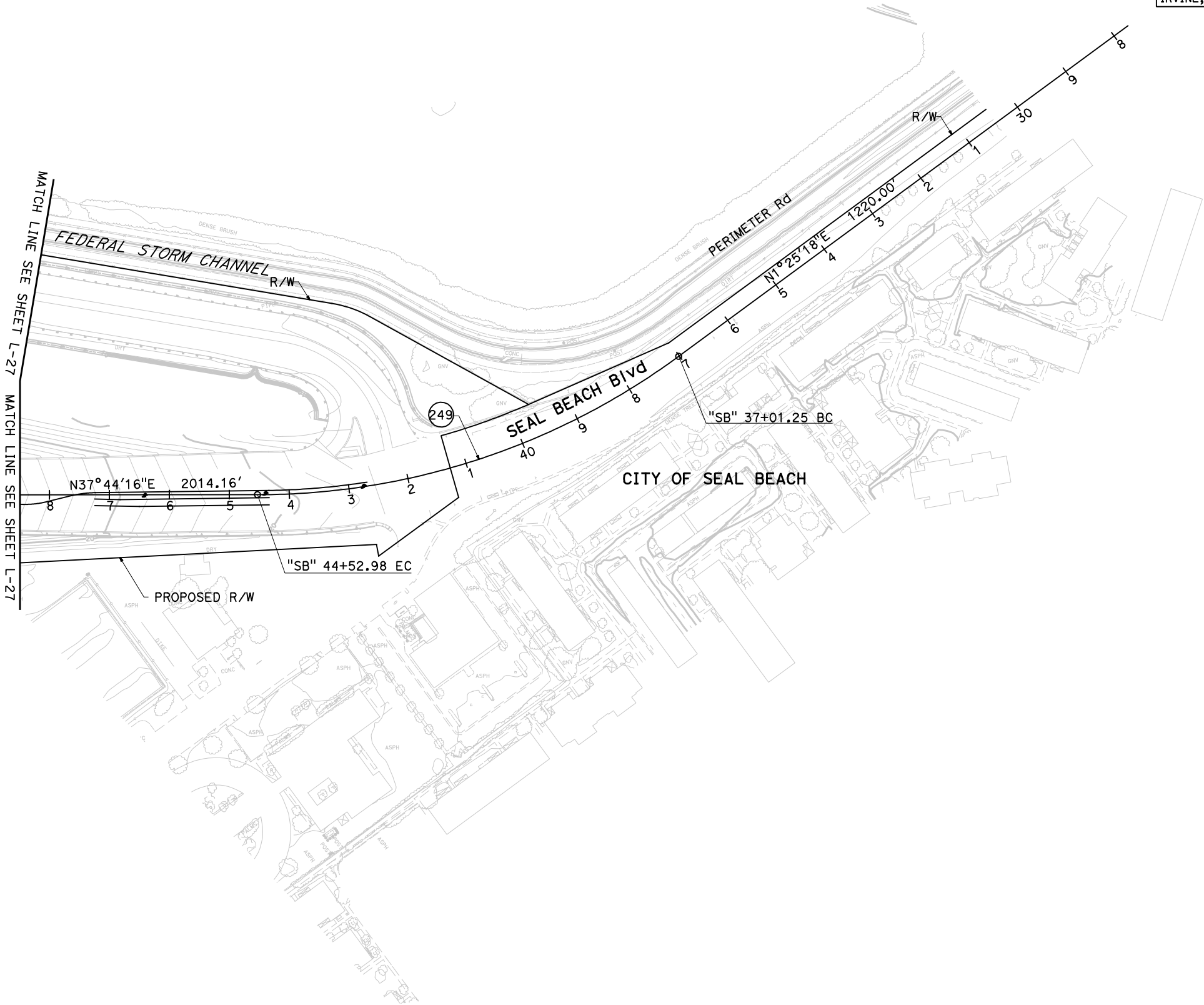
REGISTERED PROFESSIONAL ENGINEER

No. _____

Exp. _____

CIVIL

STATE OF CALIFORNIA



**ALTERNATIVE 3
LAYOUT
L-28**
SCALE 1"=100'

CURVE DATA

No.	R	Δ	T	L
(22)	2000.00'	58°25'06"	1118.18'	2039.19'
(260)	20000.00'	1°14'05"	215.53'	431.04'
(261)	3967.24'	2°58'57"	103.28'	206.51'
(262)	2072.00'	3°54'25"	70.67'	141.29'
(263)	20000.00'	0°38'43"	112.61'	225.21'
(264)	20000.00'	3°16'22"	571.38'	1142.44'



Dist	COUNTY	ROUTE	POST MILES TOTAL PROJECT	SHEET No.	TOTAL SHEETS
12,7	Oran,LA	22,73,405,605	Var		

REGISTERED CIVIL ENGINEER

DATE

PLANS APPROVAL DATE

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PARSONS
2201 DUPONT DRIVE
SUITE 200
IRVINE, CA 92612

ORANGE COUNTY
TRANSPORTATION AUTHORITY
550 SOUTH MAIN STREET
ORANGE, CA 92863

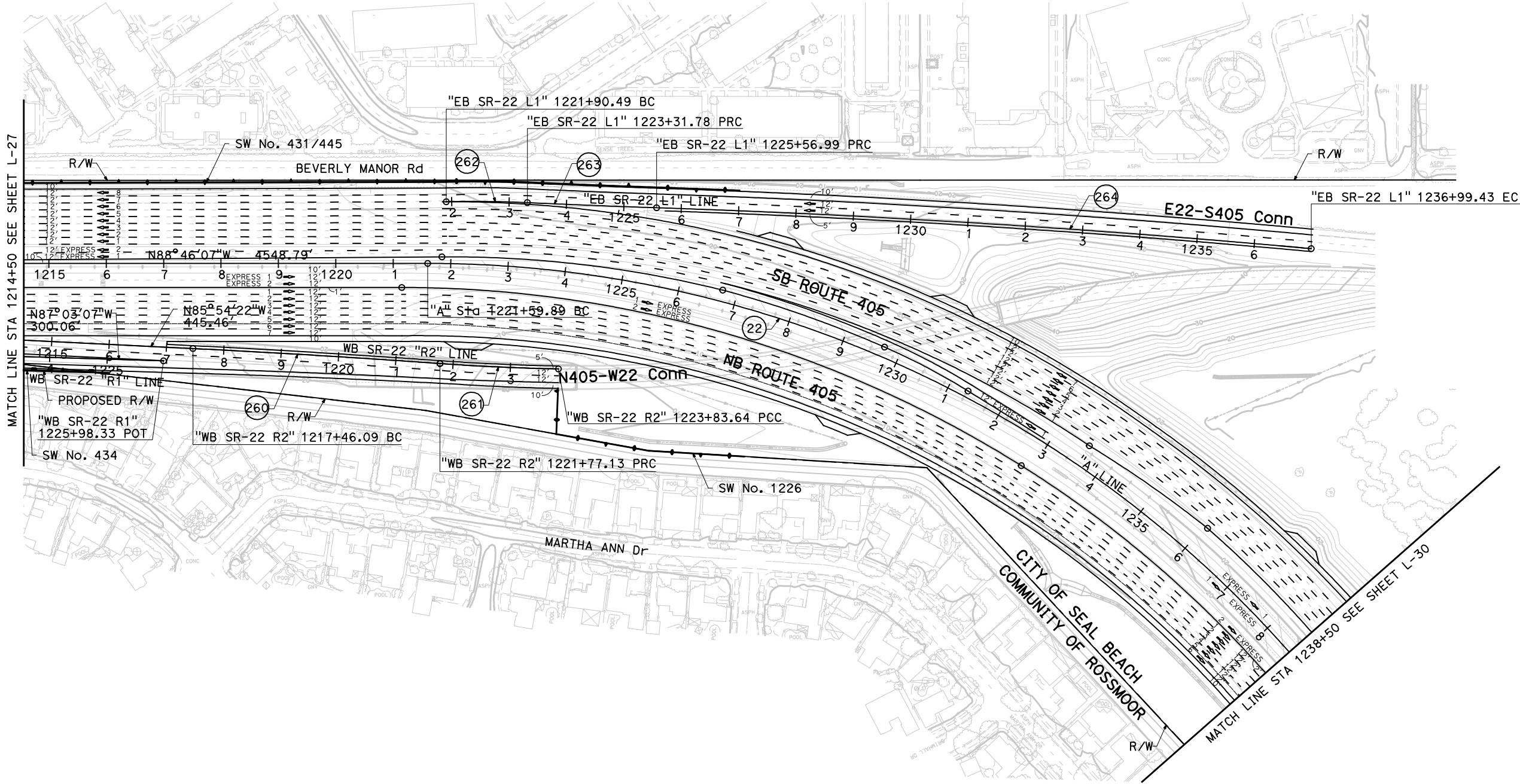
REGISTERED PROFESSIONAL ENGINEER

No.

Exp.

CIVIL

STATE OF CALIFORNIA



ALTERNATIVE 3
LAYOUT
L-29
SCALE 1"=100'

X

Subaru®

REVISED BY
DATE REVISED

CURVE DATA



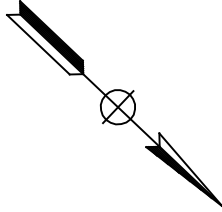
Dist	COUNTY	ROUTE	POST MILES TOTAL PROJECT	SHEET No.	TOTAL SHEETS
12,7	Ora,LA	22,73, 405,605	Var		



ALTERNATIVE 3 LAYOUT L-30

STATE OF CALIFORNIA - DEPARTMENT OF TRANSPORTATION	CONSULTANT FUNCTIONAL SUPERVISOR	CALCULATED-DESIGNED BY	REVISOR	DATE
Alttrans	CHECKED BY	DESIGNED BY	REVISOR	DATE

CURVE DATA				
No.	R	Δ	T	L
(24)	2400.00'	36°15'41"	785.86'	1518.91'



Dist	COUNTY	ROUTE	POST MILES TOTAL PROJECT	SHEET No.	TOTAL SHEETS
12,7	Oran,LA	22,73, 405,605	Var		

REGISTERED CIVIL ENGINEER

DATE

PLANS APPROVAL DATE

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PARSONS
2201 DUPONT DRIVE
SUITE 200
IRVINE, CA 92612

ORANGE COUNTY
TRANSPORTATION AUTHORITY
550 SOUTH MAIN STREET
ORANGE, CA 92863

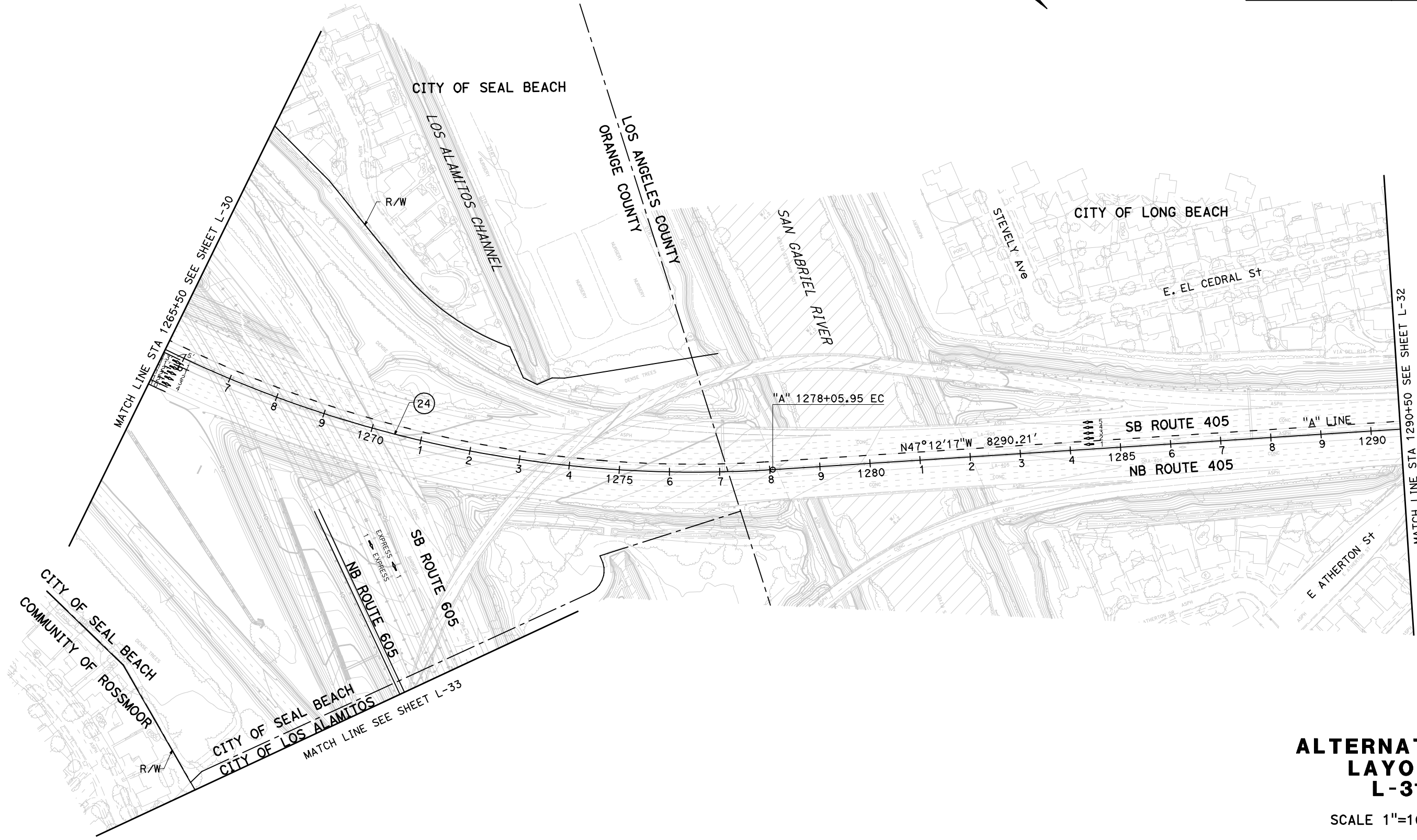
REGISTERED PROFESSIONAL ENGINEER

No.

Exp.

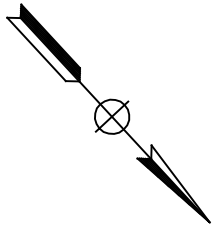
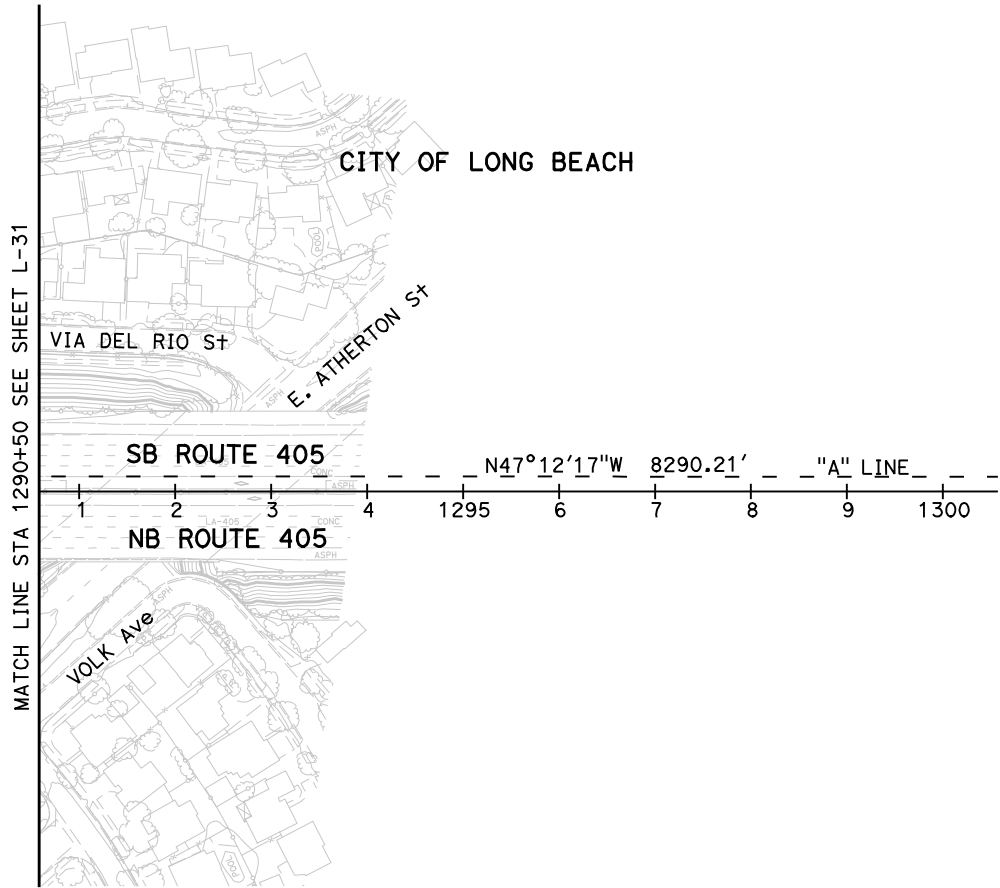
CIVIL

STATE OF CALIFORNIA

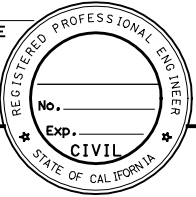


ALTERNATIVE 3
LAYOUT
L-31
SCALE 1"=100'

STATE OF CALIFORNIA - DEPARTMENT OF TRANSPORTATION	CONSULTANT FUNCTIONAL SUPERVISOR	CALCULATED-DESIGNED BY	REVISED BY		
Alttrans		CHECKED BY	DATE REVISED		



Dist	COUNTY	ROUTE	POST MILES TOTAL PROJECT	SHEET No.	TOTAL SHEETS
12,7	Oran,LA	22,73, 405,605	Var		
REGISTERED CIVIL ENGINEER			DATE		
PLANS APPROVAL DATE					
THE STATE OF CALIFORNIA OR ITS OFFICERS OR AGENTS SHALL NOT BE RESPONSIBLE FOR THE ACCURACY OR COMPLETENESS OF SCANNED COPIES OF THIS PLAN SHEET.					
PARSONS 2201 DUPONT DRIVE SUITE 200 IRVINE, CA 92612			ORANGE COUNTY TRANSPORTATION AUTHORITY 550 SOUTH MAIN STREET ORANGE, CA 92863		



ALTERNATIVE 3
LAYOUT
L-32
SCALE 1"=100'

STATE OF CALIFORNIA - DEPARTMENT OF TRANSPORTATION	CONSULTANT FUNCTIONAL SUPERVISOR	CALCULATED-DESIGNED BY	REVISOR	DATE



Dist	COUNTY	ROUTE	POST MILES TOTAL PROJECT	SHEET No.	TOTAL SHEETS
12,7	Ora,LA	22,73, 405,605	Var		
REGISTERED CIVIL ENGINEER			DATE		
PLANS APPROVAL DATE					
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PARSONS 2201 DUPONT DRIVE SUITE 200 IRVINE, CA 92612			ORANGE COUNTY TRANSPORTATION AUTHORITY 550 SOUTH MAIN STREET ORANGE, CA 92863		

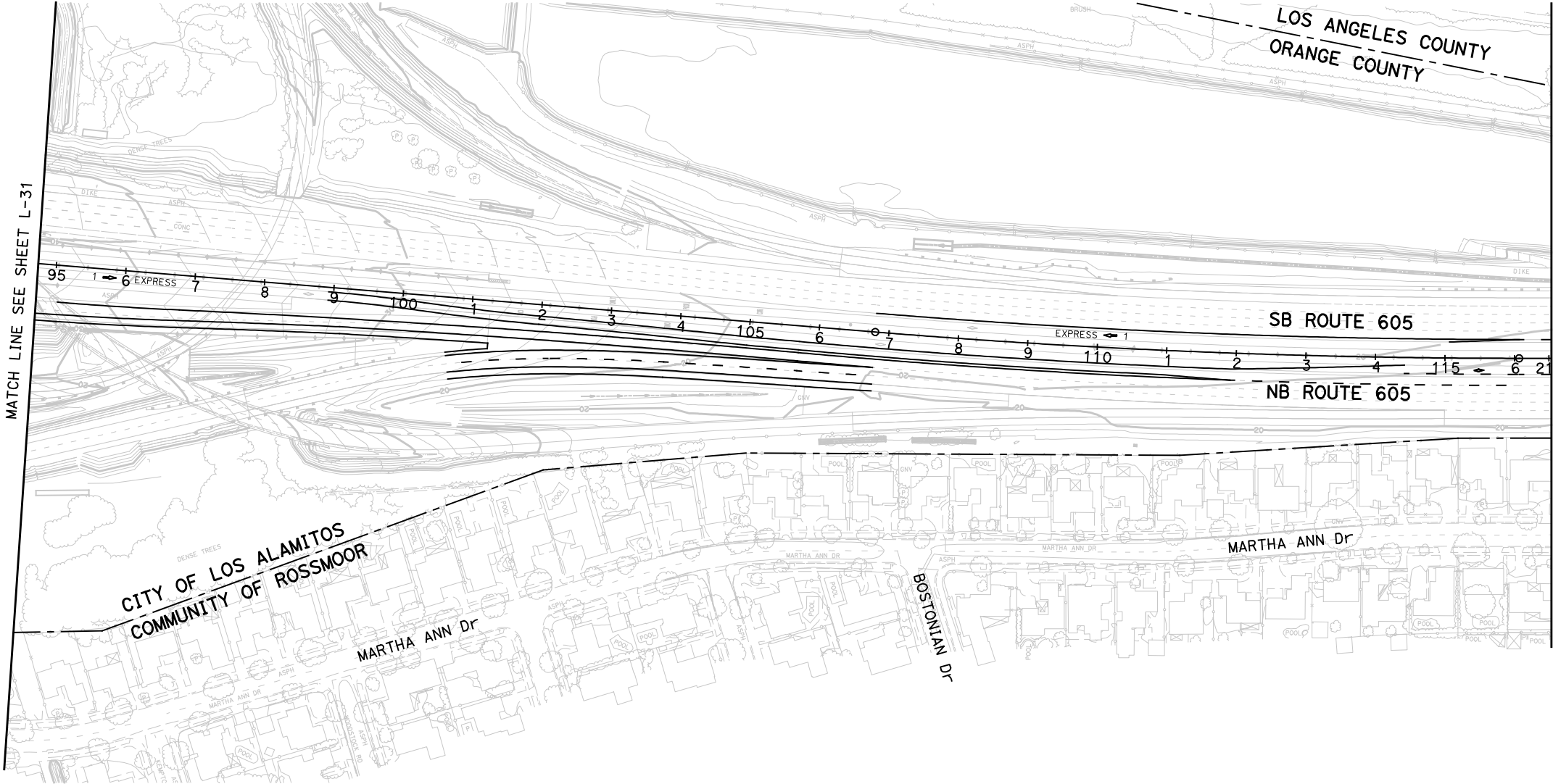
REGISTERED PROFESSIONAL ENGINEER

No.

Exp.

CIVIL

STATE OF CALIFORNIA



ALTERNATIVE 3
LAYOUT
L-33
SCALE 1"=100'

X

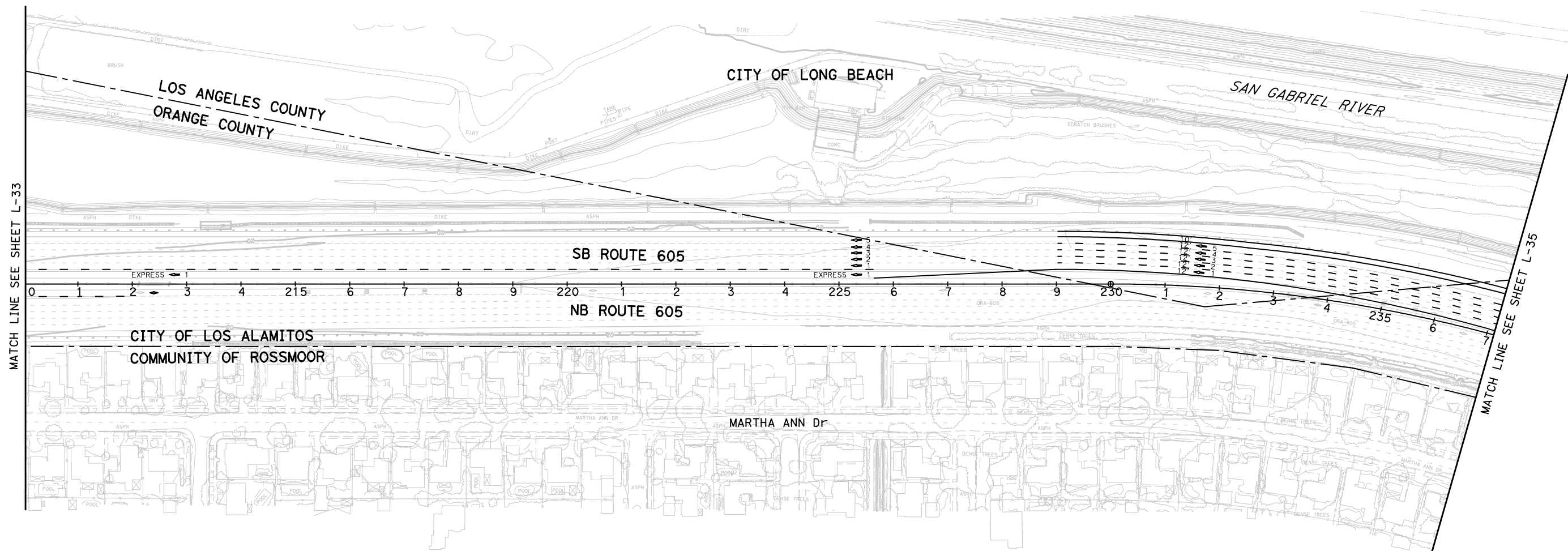
Subaru

Dist	COUNTY	ROUTE	POST MILES TOTAL PROJECT	SHEET No.	TOTAL SHEETS
12,7	Oran, LA	22, 73, 405,605	Var		

REGISTERED CIVIL ENGINEER	DATE
PLANS APPROVAL DATE	

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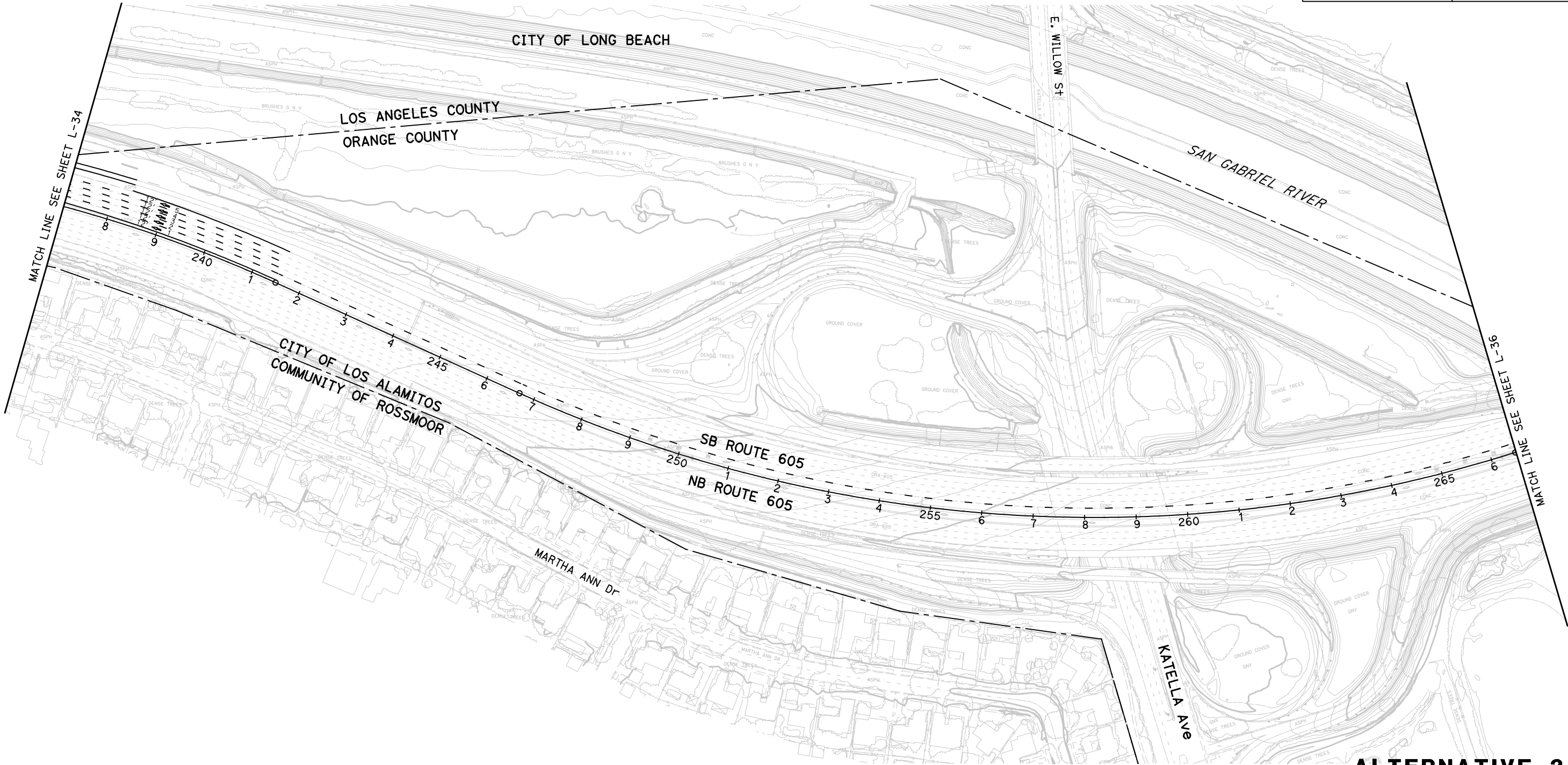
PARSONS 2201 DUPONT DRIVE SUITE 200 IRVINE, CA 92612	ORANGE COUNTY TRANSPORTATION AUTHORITY 550 SOUTH MAIN STREET ORANGE, CA 92863
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ALTERNATIVE 3
LAYOUT
L-34

SCALE 1"=100'

STATE OF CALIFORNIA - DEPARTMENT OF TRANSPORTATION	CONSULTANT FUNCTIONAL SUPERVISOR	CALCULATED-DESIGNED BY	REVISOR	DATE
Alttrans		CHECKED BY		



Dist	COUNTY	ROUTE	POST MILES TOTAL PROJECT	SHEET No.	TOTAL SHEETS
12,7	Ora,LA	22,73, 405,605	Var		
REGISTERED CIVIL ENGINEER			DATE		
PLANS APPROVAL DATE					
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PARSONS 2201 DUPONT DRIVE SUITE 200 IRVINE, CA 92612			ORANGE COUNTY TRANSPORTATION AUTHORITY 550 SOUTH MAIN STREET ORANGE, CA 92863		

REGISTERED PROFESSIONAL ENGINEER

No. _____

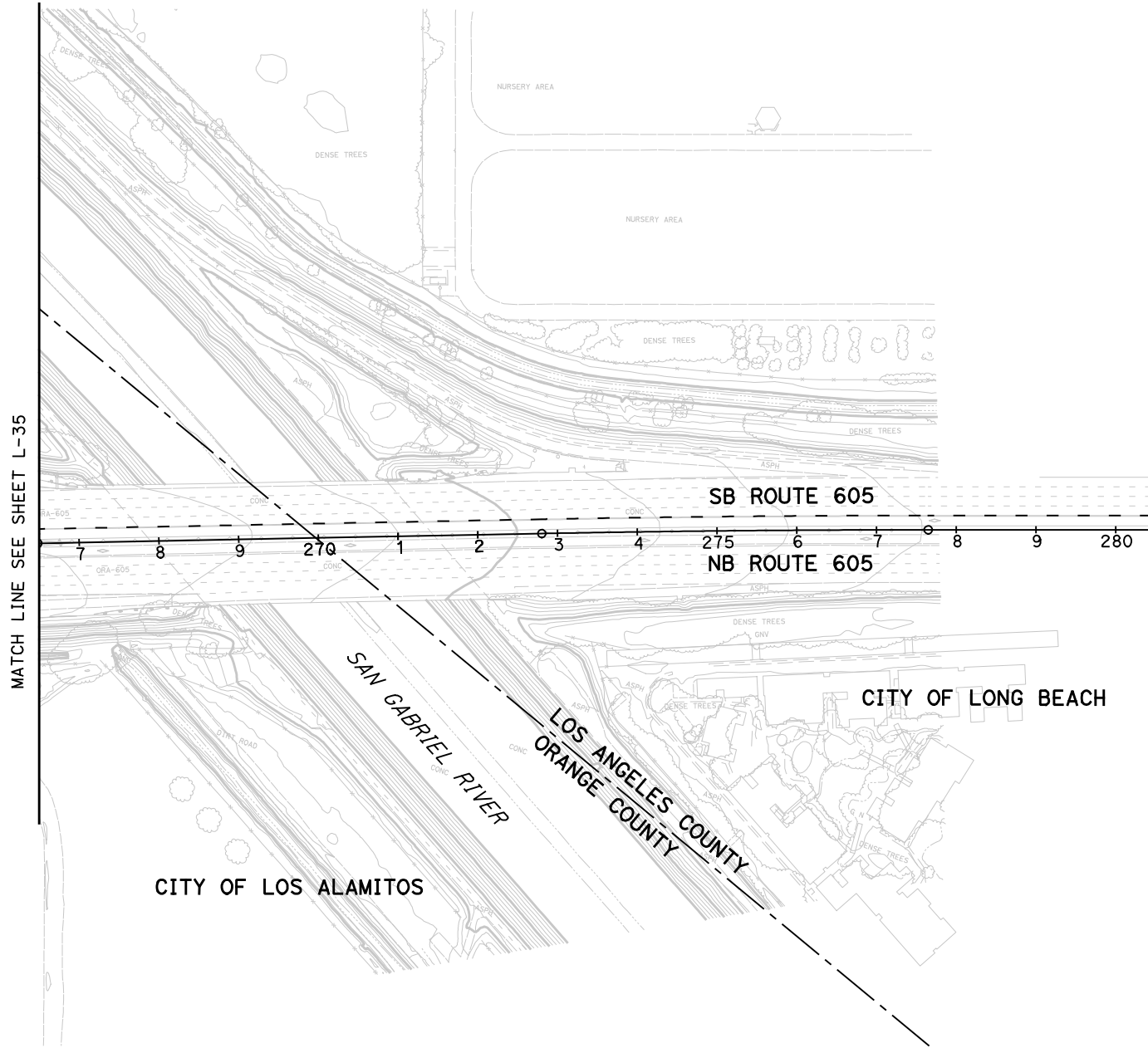
Exp. _____

CIVIL

STATE OF CALIFORNIA

ALTERNATIVE 3
LAYOUT
L-35
SCALE 1"=100'

STATE OF CALIFORNIA - DEPARTMENT OF TRANSPORTATION	CONSULTANT FUNCTIONAL SUPERVISOR	CALCULATED-DESIGNED BY	REVISOR	DATE
Alttrans		CHECKED BY		



Dist	COUNTY	ROUTE	POST MILES TOTAL PROJECT	SHEET No.	TOTAL SHEETS
12,7	Ora,LA	22,73, 405,605	Var		
REGISTERED CIVIL ENGINEER			DATE		
PLANS APPROVAL DATE					
THE STATE OF CALIFORNIA OR ITS OFFICERS OR AGENTS SHALL NOT BE RESPONSIBLE FOR THE ACCURACY OR COMPLETENESS OF SCANNED COPIES OF THIS PLAN SHEET.					
PARSONS 2201 DUPONT DRIVE SUITE 200 IRVINE, CA 92612			ORANGE COUNTY TRANSPORTATION AUTHORITY 550 SOUTH MAIN STREET ORANGE, CA 92863		

REGISTERED PROFESSIONAL ENGINEER

No.

Exp.

CIVIL

STATE OF CALIFORNIA

ALTERNATIVE 3
LAYOUT
L-36
SCALE 1"=100'

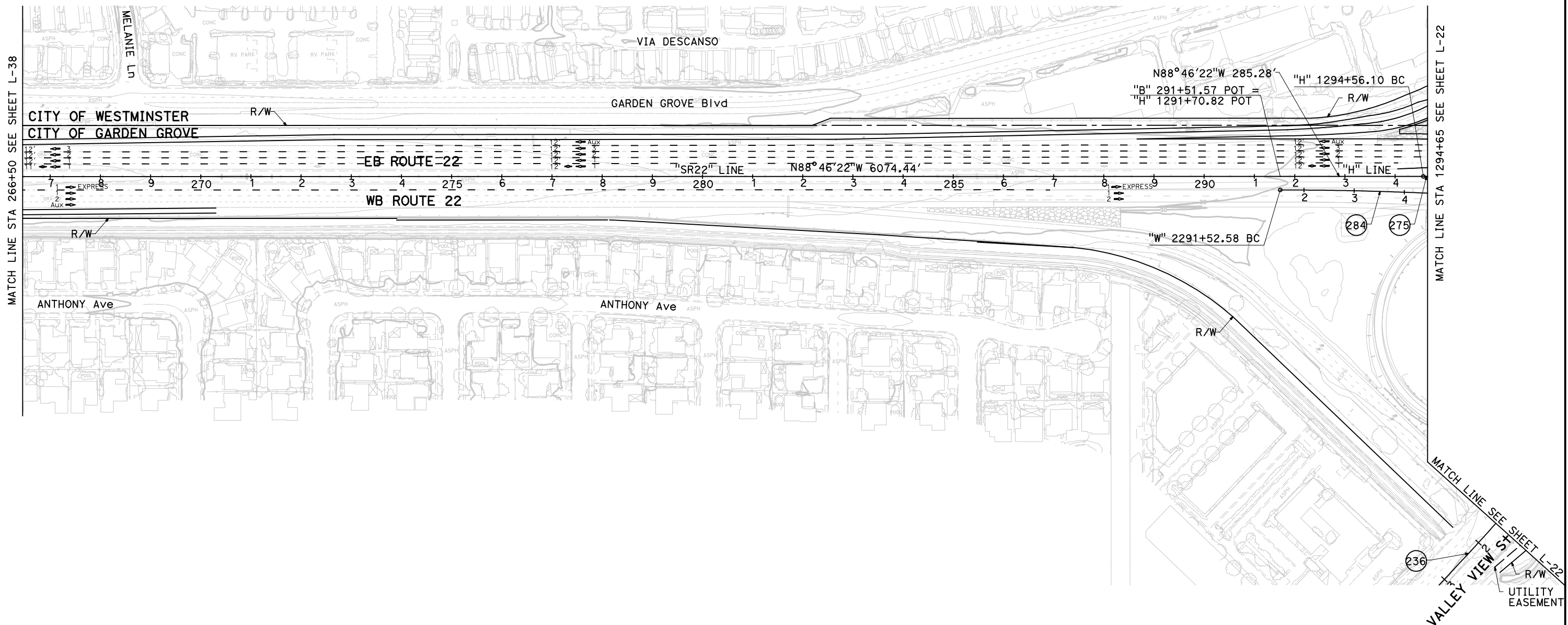
Dist#	COUNTY	ROUTE	POST MILES TOTAL PROJECT	SHEET No.	TOTAL SHEETS
12,7	Ora,LA	22,73, 405,605	Var		

REGISTERED CIVIL ENGINEER	DATE
PLANS APPROVAL DATE	

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PARSONS 2201 DUPONT DRIVE SUITE 200 IRVINE, CA 92612	ORANGE COUNTY TRANSPORTATION AUTHORITY 550 SOUTH MAIN STREET ORANGE, CA 92863
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CURVE DATA				
No.	R	Δ	T	L
236	7000.00'	3°20'52"	204.56'	409.00'
275	5000.00'	7°01'44"	307.08'	613.39'
284	6635.00'	7°33'49"	438.57'	875.87'



ALTERNATIVE 3 LAYOUT L-37

SCALE 1"=100'



STATE OF CALIFORNIA - DEPARTMENT OF TRANSPORTATION

CONSULTANT FUNCTIONAL SUPERVISOR

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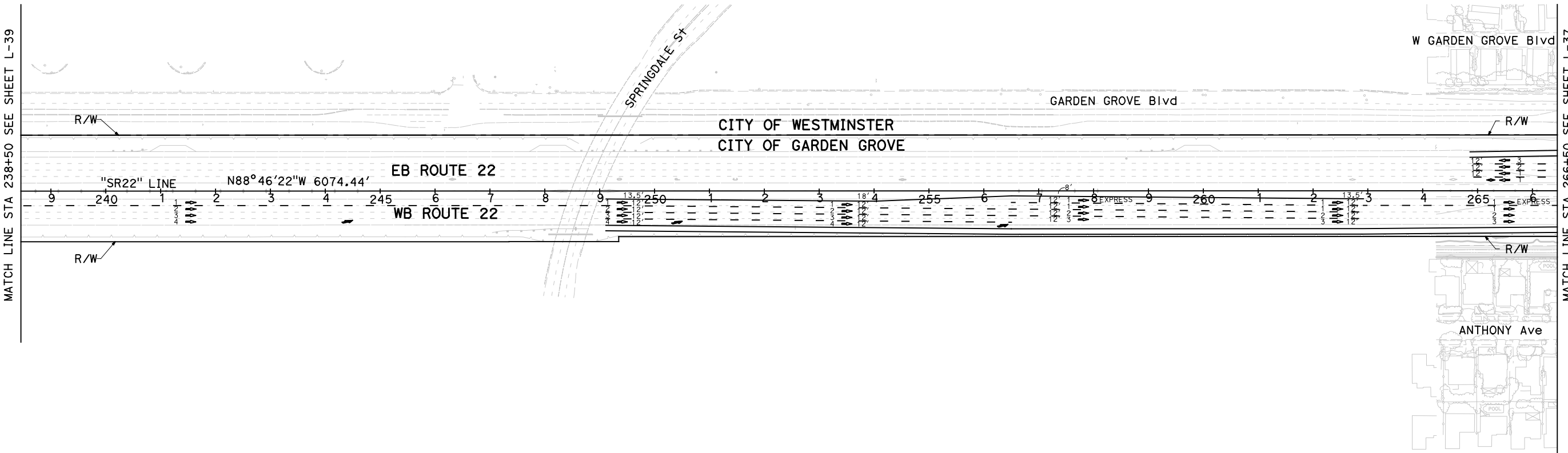
CHECKED BY

REVISOR

DATE

REVISOR

DATE



Dist	COUNTY	ROUTE	POST MILES TOTAL PROJECT	SHEET No.	TOTAL SHEETS
12.7	Oran, LA	22, 73, 405, 605	Var		

REGISTERED CIVIL ENGINEER

DATE

PLANS APPROVAL DATE

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PARSONS
2201 DUPONT DRIVE
SUITE 200
IRVINE, CA 92612

ORANGE COUNTY
TRANSPORTATION AUTHORITY
550 SOUTH MAIN STREET
ORANGE, CA 92863

REGISTERED PROFESSIONAL ENGINEER

No.


Exp.

CIVIL

STATE OF CALIFORNIA

ALTERNATIVE 3
LAYOUT
L-38
SCALE 1"=100'

STATE OF CALIFORNIA - DEPARTMENT OF TRANSPORTATION



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REVISOR

DATE

REVISOR

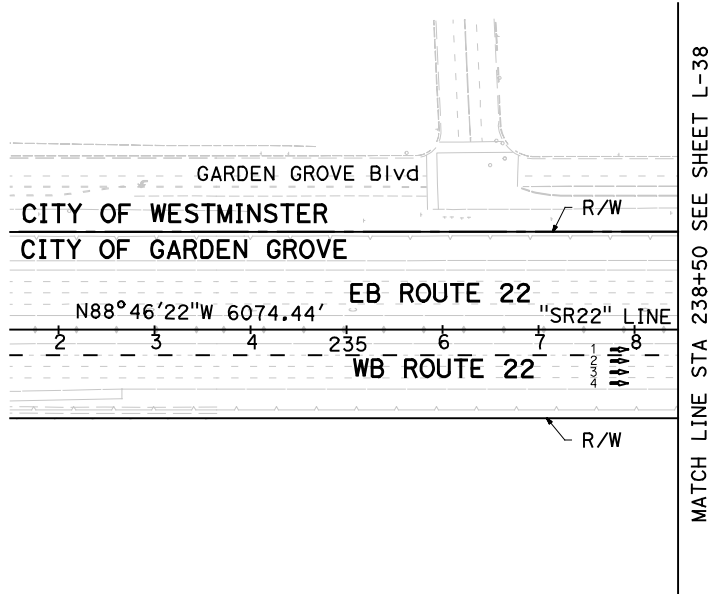
DATE

REVISOR

DATE

REVISOR

DATE



ALTERNATIVE 3

LAYOUT

L - 39

SCALE 1"=100'

Dist	COUNTY	ROUTE	POST MILES TOTAL PROJECT	SHEET No.	TOTAL SHEETS
12,7	Ora,LA	22,73, 405,605	Var		
REGISTERED CIVIL ENGINEER			DATE		
PLANS APPROVAL DATE					
THE STATE OF CALIFORNIA OR ITS OFFICERS OR AGENTS SHALL NOT BE RESPONSIBLE FOR THE ACCURACY OR COMPLETENESS OF SCANNED COPIES OF THIS PLAN SHEET.			<div><div>REGISTERED PROFESSIONAL ENGINEER</div><div>No.</div><div>Exp.</div><div>CIVIL</div><div>STATE OF CALIFORNIA</div></div>		
PARSONS 2201 DUPONT DRIVE SUITE 200 IRVINE, CA 92612			ORANGE COUNTY TRANSPORTATION AUTHORITY 550 SOUTH MAIN STREET ORANGE, CA 92863		



Appendix J

PM Interagency Consultation

Appendix J Introduction

The following Project Summary for Interagency Consultation form states that the proposed project is not a Project of Air Quality Concern (POAQC). The form was submitted to the Transportation Conformity Working Group (TCWG) for a POAQC determination. After a review, the TCWG determined that the proposed project is a POAQC and a quantitative hotspot analysis is necessary. The Project Summary for Interagency Consultation in Appendix J contains outdated information from the initial submittal to the TCWG.

RTIP ID# *(required)* ORA030605

TCWG Consideration Date December 2010

Project Description *(clearly describe project)*

The I-405 Improvement Project is located in Orange County on Route I-405 between SR-73 (PM 10.3) and I-605 (PM 24.1). The project covers a distance of approximately 14 miles. Within the limits of the proposed project, I-405 is a controlled-access highway facility with a fenced right-of-way (ROW), separated by grade from crossing traffic, with vehicular access limited to interchanges. Within the project area, I-405 consists of 8 to 12 mixed-flow general purpose (GP) lanes and two high-occupancy vehicle (HOV) lanes. The purposes of the project can be defined as follows:

- Add capacity and reduce congestion on the GP and HOV lanes along the entire I-405 corridor from SR-73 to I-605;
- Enhance interchange operations;
- Increase mobility, improve trip reliability, maximize throughput, and optimize operations;
- Implement strategies that ensure the earliest project delivery; and
- Enhance safety.

COMMON DESIGN FEATURES OF THE BUILD ALTERNATIVES

Build Alternatives 1, 2, and 3 would include the following features:

- One GP lane would be added in each direction of I-405 from Euclid Street to the I-605 interchange.
- Travel lanes on the I-405 mainline would be 12 feet wide, and right side shoulders would be 10 feet wide.
- Due to the added travel lanes and shoulder widths proposed on the I-405 mainline, 16 local street overcrossings and a pedestrian bridge over I-405 within the project limits would require complete replacement because the existing bridge spans are inadequate to accommodate the additional proposed width of the free way underneath the bridges. Each of the replacement (new) local street overcrossings would be designed to accommodate the ultimate cross-section width and maximum number of travel lanes planned for each facility by the Orange County Master Plan of Arterial Highways (MPAH).
- The Euclid Street/Ellis Avenue undercrossing bridge would be modified and extended as part of the proposed project.
- Two railroad overheads would be modified and extended as part of the proposed project. The freeway passes over the Union Pacific Railroad (UPRR) on the Bolsa Overhead (Bridge No. 55-269 at PM 17.21) and the U.S. Navy Railroad on the Navy Overhead (Bridge No. 55-272 at PM 18.36). Both railroad overheads would be widened, required railroad clearances would be maintained, and a crash cushion would be installed at the UPRR overhead.
- Improvements at each interchange within the project limits are proposed. Generally, each interchange improvement would have the following standard features:
 - Left- and right-side shoulders on on-/off-ramps;
 - Increased on-ramp storage capacity for ramp meters;
 - Removal of HOV bypass lanes from on-ramps, subject to individual analysis of each on-ramp and approval by the Department and Federal Highway Administration (FHWA);

- Increased off-ramp storage capacity at local street intersections; and
- Additional through and turn lanes at intersections of ramps and local streets.
- Each build alternative would include interchange reconfigurations at Euclid Street, Ellis Avenue, Brookhurst Street, Magnolia Street, Warner Avenue, Beach Boulevard, and Westminister Boulevard.
- The build alternatives would provide appropriate pedestrian facilities on overcrossings and along arterials within interchanges.
- Maintenance vehicle pullouts (MVP) would be included in various locations under each build alternative.
- Each build alternative would require relocation of existing utilities (e.g., electrical lines, irrigation water supply lines, underground natural gas pipelines, telecommunication lines) currently present within the I-405 ROW limits.
- The build alternatives would require modification of existing stormwater drainage channels and construction of new drainage and/or retention facilities necessary to accommodate project construction and provide sufficient drainage capacity to accommodate future runoff volumes generated with the built project in place.
- Each build alternative would add water quality Best Management Practices (BMPs).
- At various locations, new or reconstructed soundwalls and retaining walls would be constructed. Replacement walls would be constructed in areas where sections of existing walls must be modified to accommodate the proposed project.
- Landscaping and hardscaping elements would be included with each build alternative.
- Due to ROW constraints and existing non-standard features, design exceptions are being requested as a part of the proposed project. Examples of such design exceptions include the following:
 - Non-standard superelevation rates: approve new grades for ramps;
 - Lengths of transitions on ramps: approve either shortened or tightened ramps;
 - Non-standard longitudinal grades at existing tie-ins: approve the ramps into mainline to match the mainline grade; and
 - Access control: approve spacing from ramp off and on to existing driveways for businesses.
- Although TSM and TDM measures alone do not satisfy the purpose and need of the project, the following TSM and TDM measures may be incorporated into each of the build alternatives for the proposed project:
 - Real Time Adaptive Ramp Metering (RTARM) and camera systems would be provided on on-ramps;
 - At locations of interchange improvements, traffic signals would be interconnected and coordinated, where possible, to enhance traffic operations;
 - Pedestrians improvements would be added wherever possible;
 - Additional Park & Ride/ Intermodal facilities would be added at various locations to integrate with Bus Rapid Transit (BRT), express buses, Go Local Metrolink Connectors, community circulators, and local bus;
 - At all existing locations, Park & Ride facilities would be improved, including adding way-finding signs on freeways and arterials, information kiosks, and improved safety features;
 - Auxiliary lanes would be provided in various locations;

- On- and off-ramps would be designed to limit impacts to non-motorized travel, preserving access to bike lanes and trails such as the Santa Ana River bike trail; and
- Intelligent transportation systems (ITS) elements, where needed and feasible, would be provided, including the following: fiber-optic communication systems, changeable message signs, and vehicle detection systems.

UNIQUE FEATURES OF BUILD ALTERNATIVES

Alternative 1 – Add One GP Lane in Each Direction

Alternative 1 would add a single GP lane in each direction of I-405 from Euclid Street to the I-605 interchange. It would provide a full standard highway cross section, with 12-foot-wide mainline travel lanes as well as 10-foot-wide shoulders on both left (inside) and right (outside) sides in both directions.

Alternative 1 would provide continuous access between the HOV and GP lanes. On July 31, 2007, the Department approved a separate project to provide continuous ingress and egress from the HOV lanes on the entire length of I-405 in Orange County. This separate project has not yet been programmed or funded; however, the proposed continuous access would be implemented as part of Alternative 1 of the proposed project for the segment of I-405 between Euclid Street and I-605.

Under Alternative 1, auxiliary lanes would be added at various locations to provide efficient merge and diverge operations. The existing auxiliary lane from the Magnolia Street on-ramp to the Beach Boulevard off-ramp would be retained. Additional northbound auxiliary lanes would be provided between ramps at the following locations:

- From the southbound Harbor Boulevard/Hyland Street/westbound South Coast Drive on-ramp to the Euclid Street/Ellis Avenue off-ramp; and
- From the Seal Beach Boulevard on-ramp to the westbound SR-22/7th Street off-ramp.

In the southbound direction, the existing auxiliary lane from the Beach Boulevard on-ramp to the Magnolia Street off-ramp would not be retained. A southbound auxiliary lane would be provided from the Goldenwest Street/Bolsa Avenue collector-distributor (C-D) road on-ramp to the Beach Boulevard/Center Avenue off-ramp.

In the northern segment of the project area where SR-22 and I-405 overlap, Alternative 1 would result in a freeway with nine through lanes in each direction. For traffic in the left lanes, including the HOV lanes, signage would be provided far enough upstream to accommodate the required number of lane changes to properly exit the freeway.

Alternative 1 is considered a viable project alternative because it would achieve the project's purpose and need by accomplishing the following:

- Provision of additional capacity in the form of a continuous additional lane through the entire project area;
- Provision of operational improvements via redesign of interchanges and provision of additional auxiliary lanes;
- Addition of substantial vehicle storage at ramp meters through the proposed interchange reconfigurations; and
- Reduction of congestion compared to future conditions under the No Build Alternative.

Alternative 2 – Add Two GP Lanes in Each Direction

Alternative 2 would add one GP lane in each direction of I-405 from Euclid Street to the I-605 interchange (as in Alternative 1), plus add a second GP lane in the northbound direction from Brookhurst Street to the SR-22/7th Street interchange and a second GP lane in the southbound direction from the Seal Beach Boulevard on-ramp to Brookhurst Street.

Alternative 2 would provide a full standard highway cross section, with 12-foot-wide mainline travel lanes and shoulders on the left and right sides in both directions. Right side (outside) shoulders would be 10-foot-wide, while left side (in side) shoulders would have a maximum width of 10 feet with a provision for a widened left shoulder for HOV enforcement areas under consideration.

Alternative 2 would provide continuous access between the HOV and GP lanes. On July 31, 2007, the Department approved separate project to provide continuous ingress and egress from the HOV lanes on the entire length of I-405 in Orange County. This separate project has not yet been programmed or funded; however, the proposed continuous access would be implemented as part of Alternative 2 of the proposed project for the segment of I-405 between Euclid Street and I-605.

Under Alternative 2, auxiliary lanes would be added at various locations to provide efficient merge and diverge operations. In the northbound direction, the existing auxiliary lane from the Magnolia Street on-ramp to the Beach Boulevard off-ramp would be retained. A northbound auxiliary lane would be provided from the southbound Harbor Boulevard/Hyland Street/ westbound South Coast Drive on-ramp to the Euclid Street/Ellis Avenue off-ramp.

In the south bound direction, the existing auxiliary lane from the Beach Boulevard on-ramp to the Magnolia Street off-ramp would not be retained. A southbound auxiliary lane would be provided from the Goldenwest Street/Bolsa Avenue C-D road on-ramp to the Beach Boulevard/Center Avenue off-ramp.

In the northern section of the project area where SR-22 and I-405 overlap, Alternative 2 would result in a freeway with 9-10 through lanes in each direction. Signage would be provided far enough upstream to accommodate the required number of lane changes to exit the freeway for traffic in the left lanes, including the HOV lanes.

Alternative 2 is considered a viable project alternative because it would achieve the project's purpose and need by accomplishing the following:

- Enhancement of capacity in the form of two continuous additional lanes through the project area;
- Improvement of highway operations via redesign of interchanges and addition of new auxiliary lanes;
- Addition of substantial vehicle storage at ramp meters through the proposed interchange reconfigurations; and
- Relief of congestion compared to future conditions under the No Build Alternative.

Alternative 3 – Express Facility

Alternative 3 would add one GP lane in each direction of I-405 from Euclid Street to the I-605 interchange (as in Alternatives 1 and 2), plus add a tolled express lane in each direction of I-405 from SR-73 to I-605. The tolled express lane would be placed beside the existing HOV lane in each direction. The existing HOV lanes and new toll lanes would be managed jointly as an Express Lane Facility with two lanes in each direction.

Operation of the Express Lane Facility would provide preferential toll treatment for HOVs. All vehicles in the express lanes, tolled or free, would be able to use both lanes of the Express Lane Facility. Tolls for use of the Express Lane Facility would be collected exclusively by electronic media. Signing related to the Express Lane Facility would provide both toll and access information to motorists before entering each segment of the Express Lane Facility.

Alternative 3 would provide a full standard highway cross section, with 12-foot-wide mainline travel lanes and shoulders on the left and right sides in both directions. Right side (outside) shoulders would be 10-foot-wide, while left side (in side) shoulders would have a maximum width of 10 feet with a provision for a widened left shoulder for enforcement areas under consideration. The joint HOV/toll lane Express Lane Facility would be separated from the GP lanes by a 1-to-4 foot buffer.

Under Alternative 3, auxiliary lanes would be added at various locations to provide efficient merge and diverge operations. The existing auxiliary lane from the Magnolia Street on-ramp to the Beach Boulevard off-ramp would be retained. Additional northbound auxiliary lanes would be provided between ramps at the following locations:

- From the southbound Harbor Boulevard/Hyland Street/westbound South Coast Drive on-ramp to the Euclid Street/Ellis Avenue off-ramp;
- From the Magnolia Street on-ramp to the Beach Boulevard off-ramp; and
- From the Seal Beach Boulevard on-ramp to the westbound SR-22/7th Street off-ramp.

In the southbound direction, the existing auxiliary lane from the Beach Boulevard on-ramp to the Magnolia Street off-ramp would not be retained. Southbound additional auxiliary lanes would be provided between ramps at the following locations:

- From the Goldenwest Street/Bolsa Avenue C-D road on-ramp to the Beach Boulevard/Center Avenue off-ramp; and
- From the southbound Euclid Street on-ramp to the Harbor Boulevard off-ramp, the southern portion of which currently exists.

To accommodate the Express Lane Facility on I-405, there would be transition areas at both ends of the project to match the existing HOV and GP lane designations north and south of the project limits. Transition areas would include portions of I-605 and SR-73, as well as portions of I-405 north of I-605 and south of SR-73. A transition area would also be required on SR-22 east of I-405.

To facilitate access to the Express Lane Facility, the following seven access points are currently under consideration:

1. I-405 south of the SR-73 junction, by an at-grade access;
2. SR-73, by either an at-grade access or a direct connector;
3. I-405 in the Brookhurst Street/Magnolia Street area, by an at-grade access;
4. I-405 in the Goldenwest Street/Westminster Boulevard area, by an at-grade access;
5. SR-22 east of the I-405 junction, by a direct connector;
6. I-605 north of the I-405 junction, by a direct connector; and
7. I-405 north of the I-605 junction, by at-grade access.

At the Brookhurst Street/Magnolia Street and Goldenwest Street/Westminster Boulevard access locations, access to the Express Lane Facility would be at-grade and similar to ingress/egress treatments used on at-grade buffer-separated HOV facilities.

Access to the Express Lane Facility from SR-22 and I-605 would be via the HOV direct connectors to be constructed as part of the SR-22 WCC Project. Under Alternative 3, the WCC Project HOV direct connectors would become part of the I-405 Express Lane Facility, and use of the HOV lane direct connectors would become tolled for vehicles not meeting the HOV occupancy requirement.

In the northern section of the project area where SR-22 and I-405 overlap, Alternative 3 would result in a freeway with nine through lanes in each direction. For traffic in the left lanes, including the HOV lanes, to properly exit the freeway, signage would be provided far enough upstream to accommodate the required number of lane changes to exit the freeway.

Alternative 3 is considered a viable project alternative because it would achieve the project's purpose and need by accomplishing the following:

- Addition of capacity in the form of two new continuous lanes through the project area;
- Provision of operational improvements through redesign of interchanges and addition of auxiliary lanes;
- Addition of considerable vehicle storage at ramp meters through the proposed interchange reconfigurations; and
- Reduction of congestion compared to future conditions under the No Build Alternative.

No Build (No Action) Alternative

The No Build Alternative provides a "baseline" for comparing impacts associated with the build alternatives because environmental review must consider the effects of not implementing the proposed project. The Project Baseline conditions under the No Build Alternative would provide no additional lanes or interchange improvements to the I-405 corridor. The project area would continue to operate with no additional improvements and would not achieve the project's stated purpose and need.

Compared to the existing condition, the future Project Baseline assumed under the No Build Alternative includes the future completion of the following two projects:

- The SR-22 WCC Project (currently in the construction phase), which has received environmental document approval and is proceeding through the design and construction phases; and
- The Costa Mesa Freeway (SR-55) Improvements, which would add new lanes to SR-55 between SR-22 on the north and I-405 on the south and improvements on SR-55 between SR-91 on the north and SR-22 on the south.

The following improvements in the project area are to be constructed by the SR-22 WCC Project and are considered part of the future Project Baseline conditions:

- An additional HOV lane in each direction between SR-22 East and I-605;
- HOV lane direct connectors at the I-405/SR-22 East and I-405/I-605 interchanges;
- Relocation of the existing off-ramp to southbound Bolsa Chica Road, which currently exits from the eastbound SR-22 branch connector, to exit from the I-405 southbound mainline;
- Replacement of the Seal Beach Boulevard overcrossing;
- Replacement of the SR-22 bridge carrying westbound SR-22 over I-405 near 7th Street;
- Replacement of the SR-22 bridge carrying eastbound SR-22 over I-405 near Valley View Street;
- New bridge carrying the planned I-405/SR-22 HOV direct connectors over I-405 northbound; and
- New bridge carrying the planned I-405/I-605 HOV direct connector over I-405 northbound.